



# Australian Bureau of Statistics

6150.0.55.003 - Labour Account Australia, Quarterly Experimental Estimates , September 2017

Previous ISSUE Released at 11:30 AM (CANBERRA TIME) 10/07/2018 First Issue

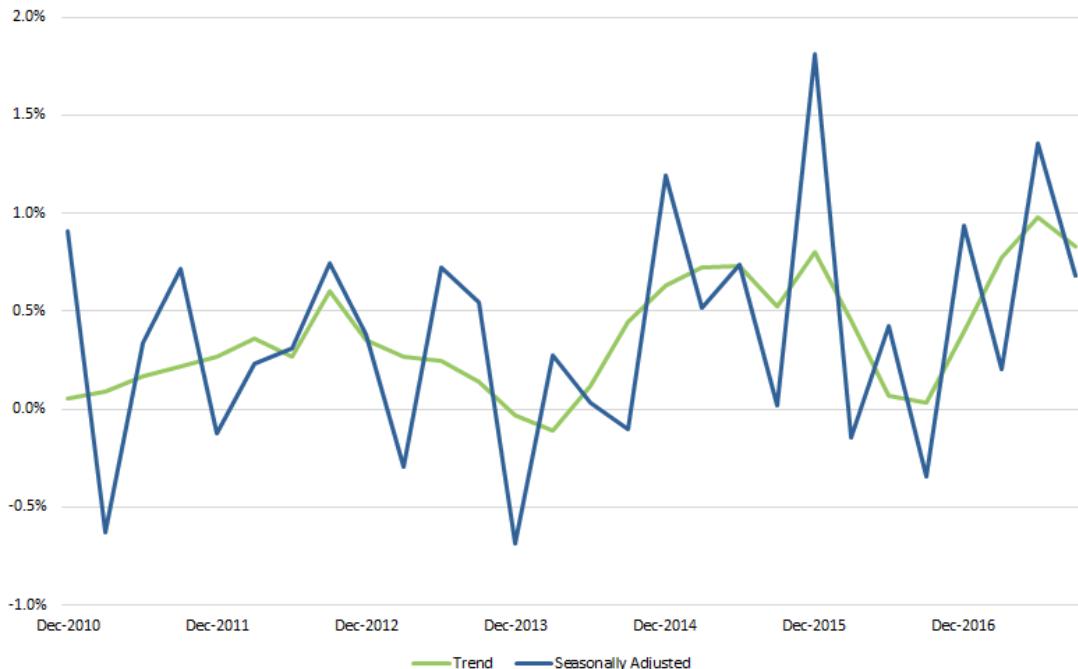
## Summary

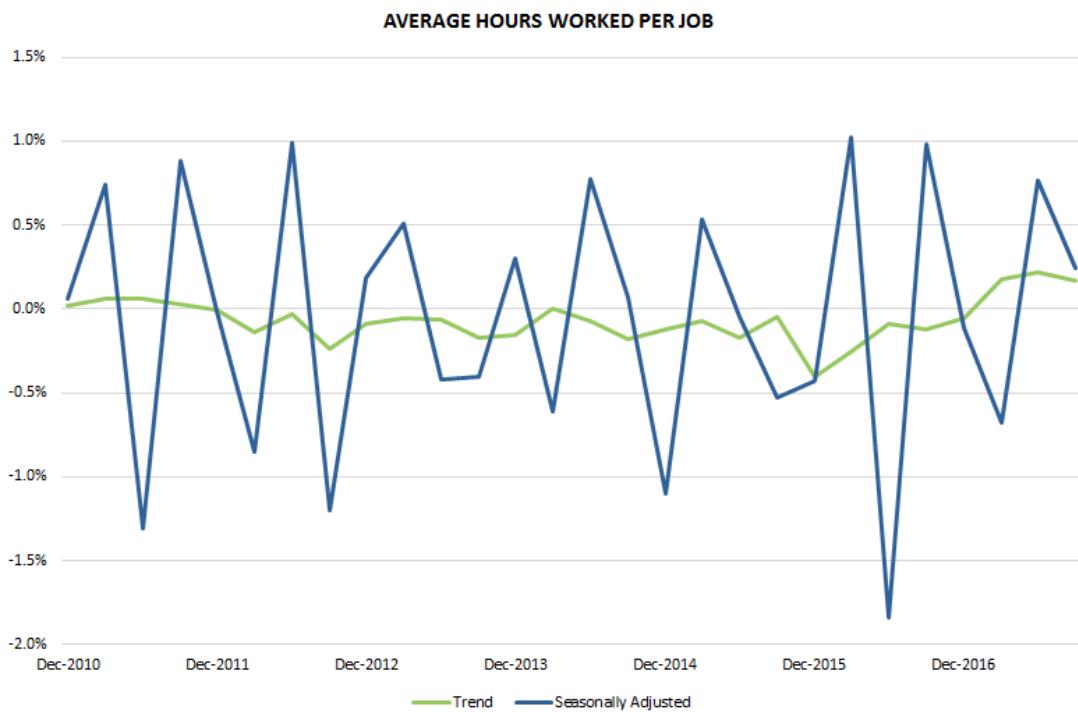
### Key Findings

#### KEY FINDINGS

Data Item Description	Trend		Seasonally Adjusted	
	Jun qtr 2017 to Sept qtr 2017 % change	Sept qtr 2016 to Sept qtr 2017 % change	Jun qtr 2017 to Sept qtr 2017 % change	Sept qtr 2016 to Sept qtr 2017 % change
Filled Jobs	0.8	3.0	0.7	3.2
Main Job	0.7	2.8	0.5	2.9
Secondary Job	2.7	7.0	2.8	7.3
Job Vacancies	3.7	13.9	6.3	15.8
Hours Actually Worked	1.0	3.5	0.9	3.4
Average Hours Actually Worked Per Job	0.2	0.5	0.2	0.2
Average Income Per Employed Person	0.3	0.5	0.2	0.4

FILLED JOBS - GROWTH





The number of jobs in Australia increased by 92,746 to 13.7 million in seasonally adjusted terms in the September quarter 2017.

Main jobs increased by 68,490 and secondary jobs increased by 24,256.

Hours actually worked increased by 47,945 hours to 5.2 million hours.

Total labour income increased by \$2,553 resulting in the average labour income per employed person being \$18,361.

## Analysis

### ANALYSIS

#### TREND ESTIMATES

In trend terms the total number of jobs in Australia increased by 120,440 (or 0.9%), made up of 7,294 job vacancies and 113,146 filled jobs.

Filled jobs in Australia grew by 0.8% in the September quarter 2017, following a 1.0% rise in the June quarter 2017. Jobs grew 3.0% through the year in trend terms. The number of main jobs grew by 89,600 an increase of 0.7%; while secondary jobs grew by 23,546 an increase of 2.7% in the September quarter 2017.

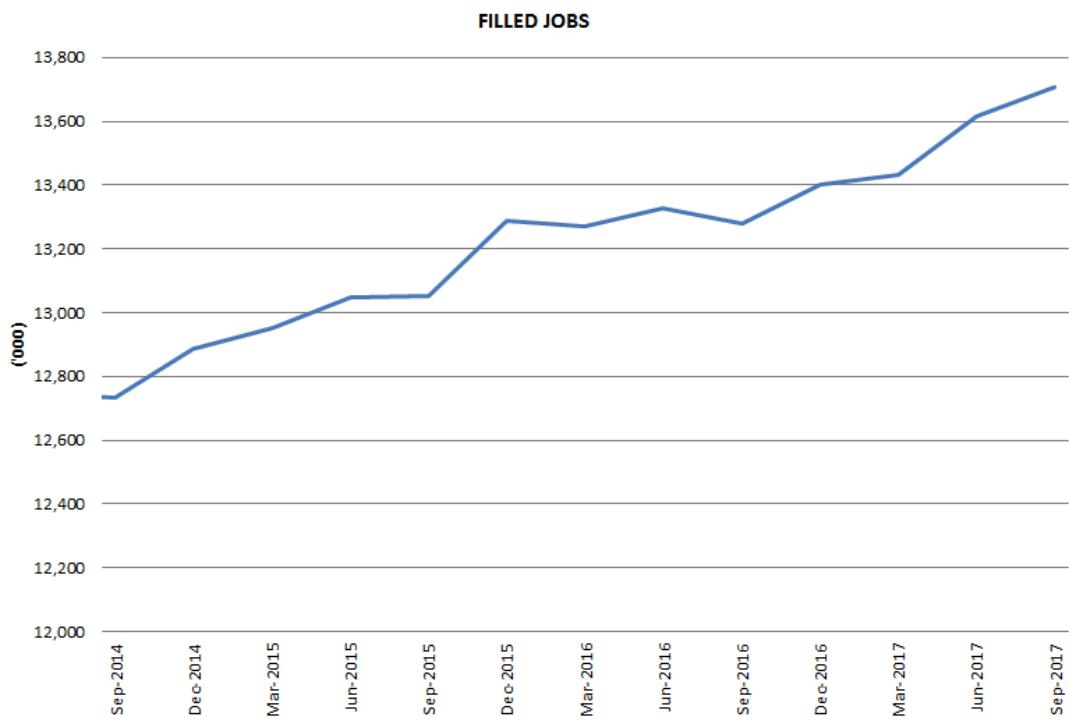
The total number of employed persons increased by 0.8% to 12.8 million in the September quarter 2017.

The total number of hours actually worked increased by 1.0% to 5,232 million hours and the total labour income increased by 1.1% to 235,856 million dollars.

#### SEASONALLY ADJUSTED ESTIMATES

##### Jobs

Filled jobs in Australia grew by 0.7% in the September quarter 2017, following a 1.4% rise in the June quarter 2017. Jobs grew 3.2% through the year in seasonally adjusted terms.

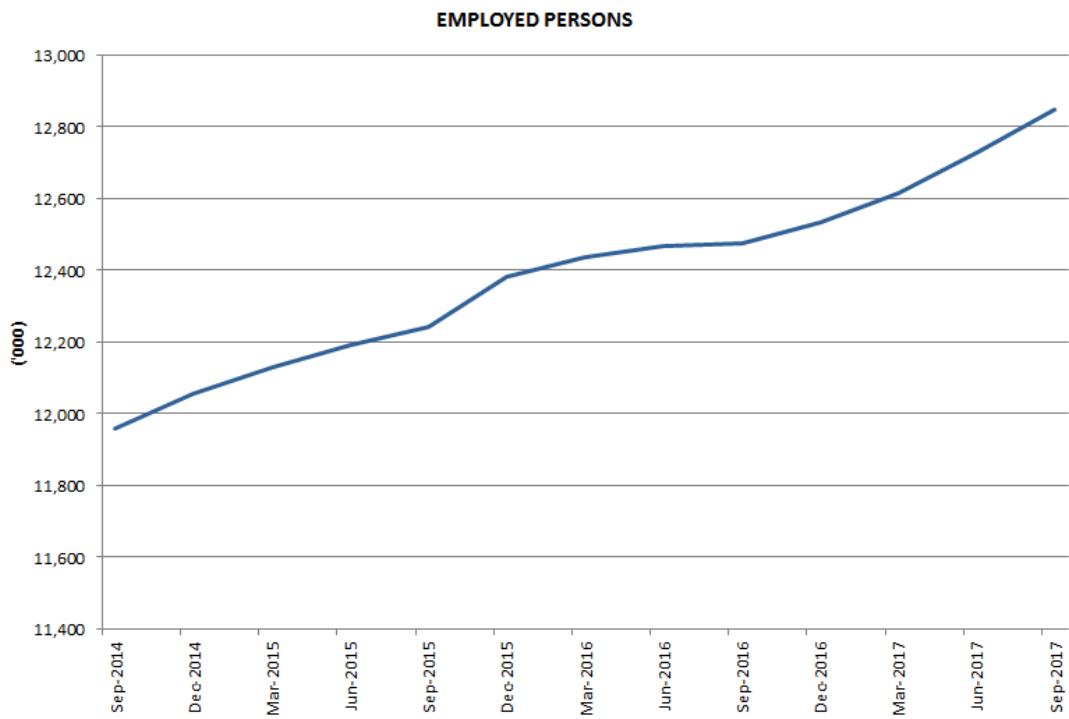


The total number of jobs in Australia increased by 104,901 (or 0.8%), made up of 12,155 job vacancies and 92,746 filled jobs.

The number of main jobs grew by 68,490 an increase of 0.5%; while secondary jobs grew by 24,256 an increase of 2.8% in the September quarter 2017.

#### Persons

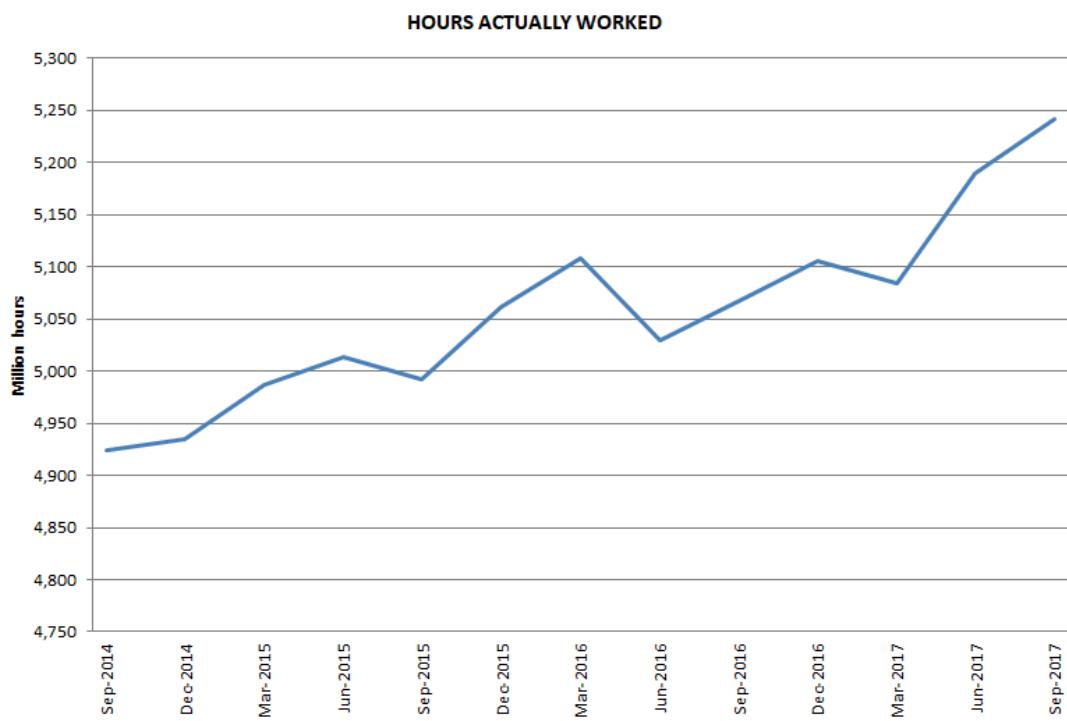
The total number of employed persons increased by 0.9% to 12.8 million in the September quarter 2017.



The proportion of employed persons working more than one job was 6.8% in the September quarter 2010 and 6.9% in the September quarter 2017.

#### Volumes

The total number of hours actually worked increased by 0.9% to 5,239 million hours; while the total number of hours paid increased 0.9% to 5,629 million hours.



## Payments

Total labour income increased by 1.1% to 235,892 million dollars.

Total compensation of employees increased by 1.2% to 212,857 million dollars, and labour income from self-employment decreased by 0.2% to 23,034 million dollars.

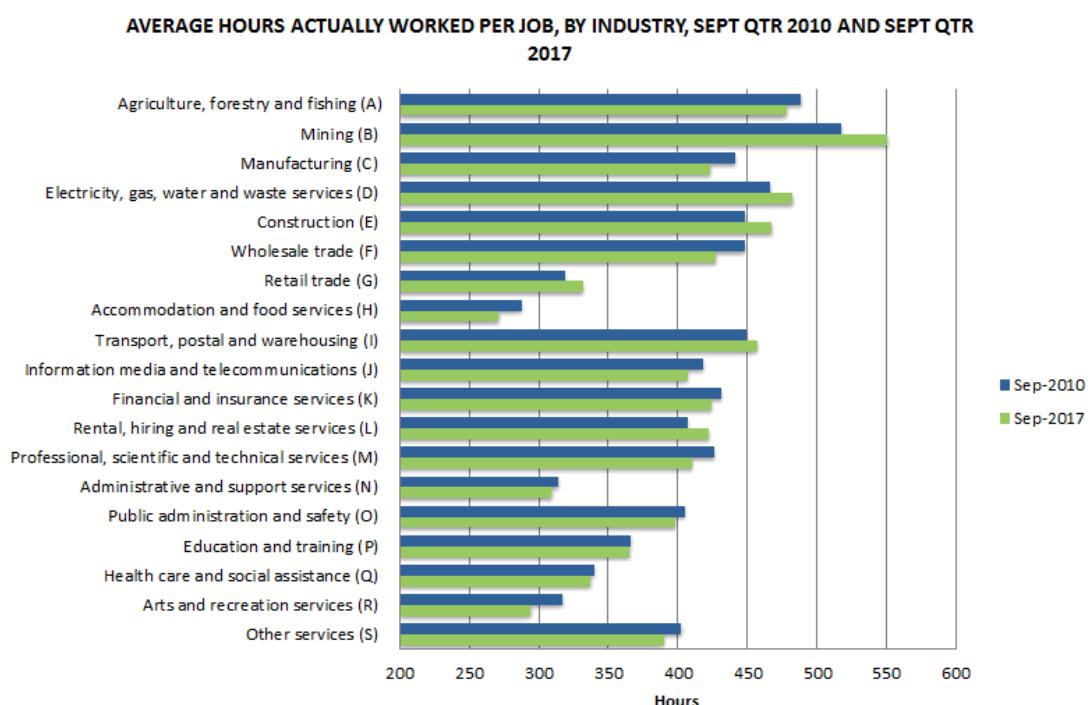
Over the same period, total labour costs increased by 2,866 million dollars (1.2%) to 250,208 million dollars.

## Ratios

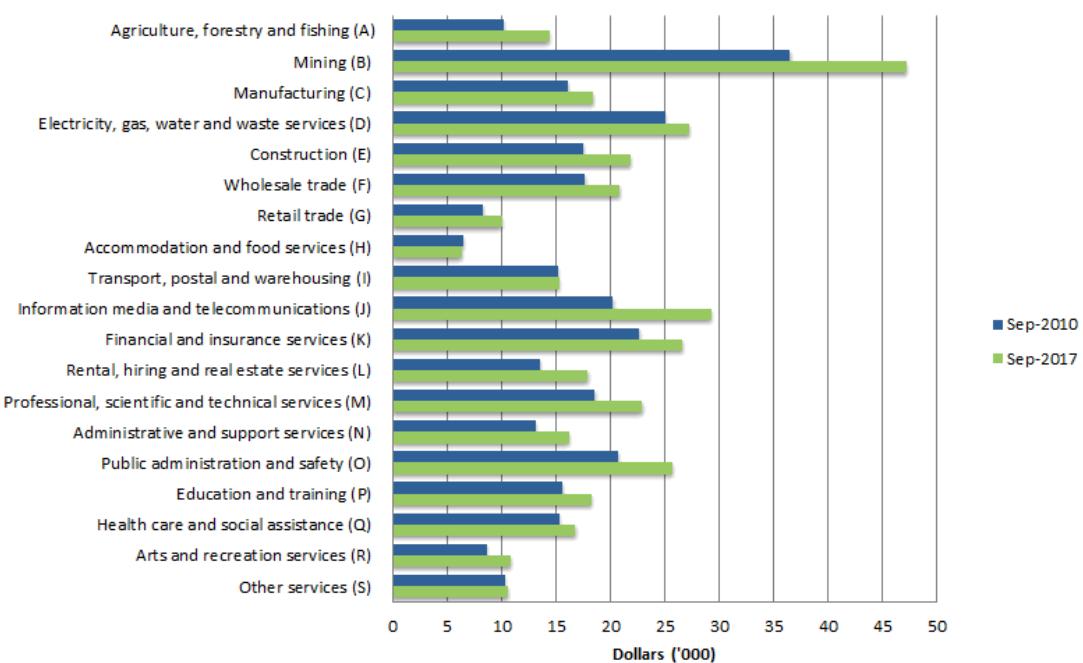
Average income per person increased by 0.2% to \$18,361 in the September quarter 2017.

Average hours worked per job increased by 0.2% to 382 hours.

Average labour cost per hour paid remained the same at \$44.

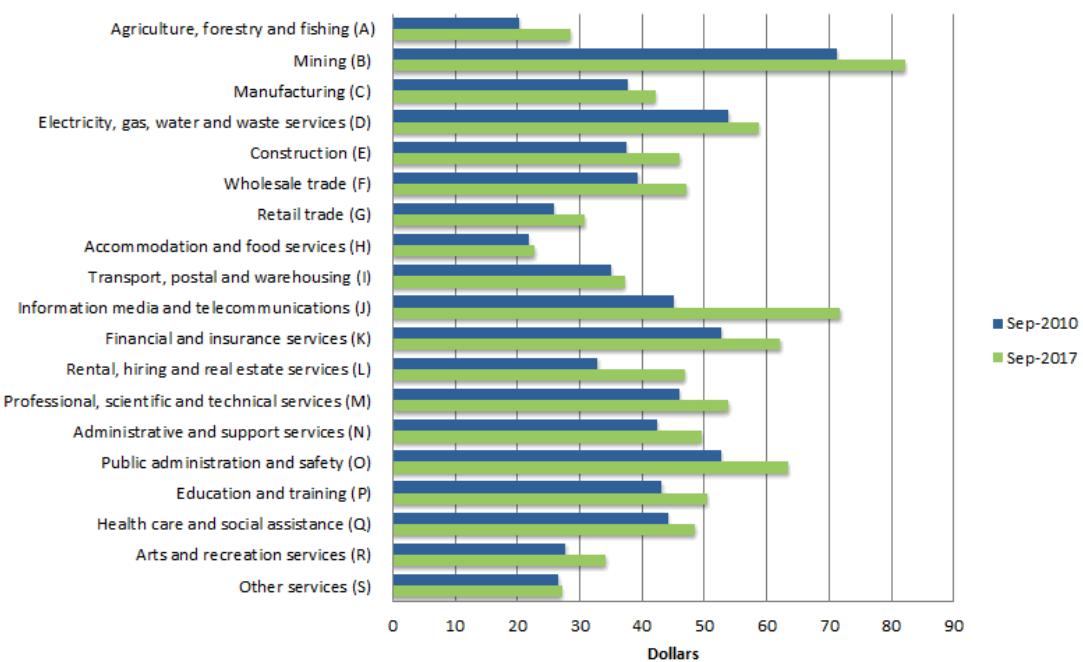


### AVERAGE INCOME PER EMPLOYED PERSON, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017



Average hourly income per Labour Accounts Employed Person worked per job is the hours actually worked divided by all filled jobs.

### AVERAGE LABOUR COST PER HOUR PAID, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017



## Industry Analysis

### INDUSTRY ANALYSIS

Note: All estimates are in seasonally adjusted unless otherwise stated.

#### Agriculture, forestry and fishing

Hours actually worked increased by 2.1% in the September quarter 2017, largely driven by growth in the number of filled jobs. A record 240 million hours were worked in September 2017.

#### Mining

Mining recorded its third consecutive quarter of positive jobs growth in the September quarter 2017, increasing by 1.9%. There were 6,500 more filled jobs than in December 2016, when jobs decreased to their lowest level in five years of 155,100 jobs.

## **Manufacturing**

Filled jobs increased by 1.0% in the September quarter 2017 to 873,500 jobs, the highest since December 2015. Average labour cost per hour worked continued to moderate, decreasing slightly to \$46.92.

## **Electricity, gas, water and waste services**

Secondary jobs doubled between the September quarter 2010 and the September quarter 2017. This increased the secondary job share of filled jobs for this industry from 1.7% to 2.9%.

## **Construction**

Compensation of employees in the Construction industry increased by 2.6% in September quarter 2017 to reach \$17.9 billion. This was a record high for the industry.

## **Wholesale trade**

Total jobs for Wholesale trade fell by 2.3% in September quarter 2017, with a decrease in both filled jobs (2.3%) and vacant jobs (5.4%). The number of secondary jobs rose in September 2017 for the second consecutive quarter for this industry.

## **Retail trade**

The number of total jobs in Retail trade was relatively flat in September quarter 2017, with a small rise in filled jobs (1.0%) partially offset by an 8.1% decrease in job vacancies. Although there was a 3.1% decrease from the previous quarter, Retail trade recorded the highest number of underutilised persons of any industry in September 2017.

## **Accommodation and food services**

Filled jobs in Accommodation and food services rose by 2.1% in September quarter 2017, with an increase in both main jobs (1.9%) and secondary jobs (5.1%). This industry provided 9.4% of Australia's secondary jobs this quarter, ranking third behind Administrative and support services and Health care and social assistance.

## **Transport, postal and warehousing**

Total jobs in Transport, postal and warehousing rose by 5.8% in September quarter 2017, with an increase in both vacant jobs (10.9%) and filled jobs (5.7%). Incomes did not increase as strongly, causing the average hourly income to fall (7.7%) for the second consecutive quarter.

## **Information, media and telecommunications**

September quarter 2017 was the third consecutive quarter the Information media and telecommunications industry experienced a drop in the total labour force (-2.0%). This coincided with the first decrease in the number of secondary jobs (8.2%) since June 2016, and the first rise in labour costs since September 2016 (1.9%).

## **Financial and insurance services**

The Financial and insurance services industry labour force experienced its fourth consecutive rise in September quarter 2017, increasing 2.1%. This was accompanied by a 2.1% rise in hours actually worked, and a 2.1% increase in available hours of labour supply.

## **Rental, hiring and real estate services**

Total jobs in Rental, hiring and real estate services industry rose by 2.7% in September quarter 2017. This was caused primarily by a 2.2% increase in main jobs, and was slightly offset by a decrease in job vacancies (-2.4%).

## **Professional, scientific and technical services**

Professional, scientific and technical services saw a 3.4% rise in the labour force total in September quarter 2017, driven by a 3.4% increase in the number of employed persons. There was a drop of 1.9 million hours (8.4%) in the number of hours sought but not worked for Professional, scientific and technical services. This was consistent with the 1.2% decrease in the number of underutilised persons.

## **Administrative and support services**

There was a drop of 2.8% in the number of filled jobs in Administrative and support services in September quarter 2017, driven by a decrease of 3.9% in the number of main jobs. The number of hours actually worked saw a 4.3% decrease in September 2017.

## **Public administration and safety**

Public administration and safety saw significant movements in the number of underutilised persons in September quarter 2017, with a decrease of 21.4%. This coincided with a rise of 1.1% in the number of filled jobs.

## **Education and training**

Education and training saw a 2.0% increase in filled jobs in September quarter 2017, driven by a 1.5% rise in the number of employed persons. This coincided with an increase in the number of hours worked actually worked of 0.5%.

## **Health care and social assistance**

The Health care and social assistance industry average hourly income rose by 2.8% in September quarter 2017, placing it at a seven year industry high of \$49.30 per hour. Job vacancies were also at a seven year high after rising 8.1% to 22,900 vacancies.

### **Arts and recreation services**

The Arts and recreation services industry labour force fell for the second consecutive quarter, decreasing by 0.8% in September quarter 2017. The labour force now stands at 225,600 persons, which is 7,800 persons more than the labour force was in September 2010.

### **Other services**

The number of filled jobs in the Other services industry continued this year's growth pattern, increasing by 0.9% in September quarter 2017. This industry also saw a rise in employed persons (1.2%), a fall in underemployed persons (11.1%) and a drop in underutilised persons (7.7%).

## **Jobs**

### **JOBS**

Filled jobs in Australia grew by 0.7% in the September quarter 2017, following a 1.4% rise in the June quarter 2017. Jobs grew 3.2% through the year in seasonally adjusted terms.

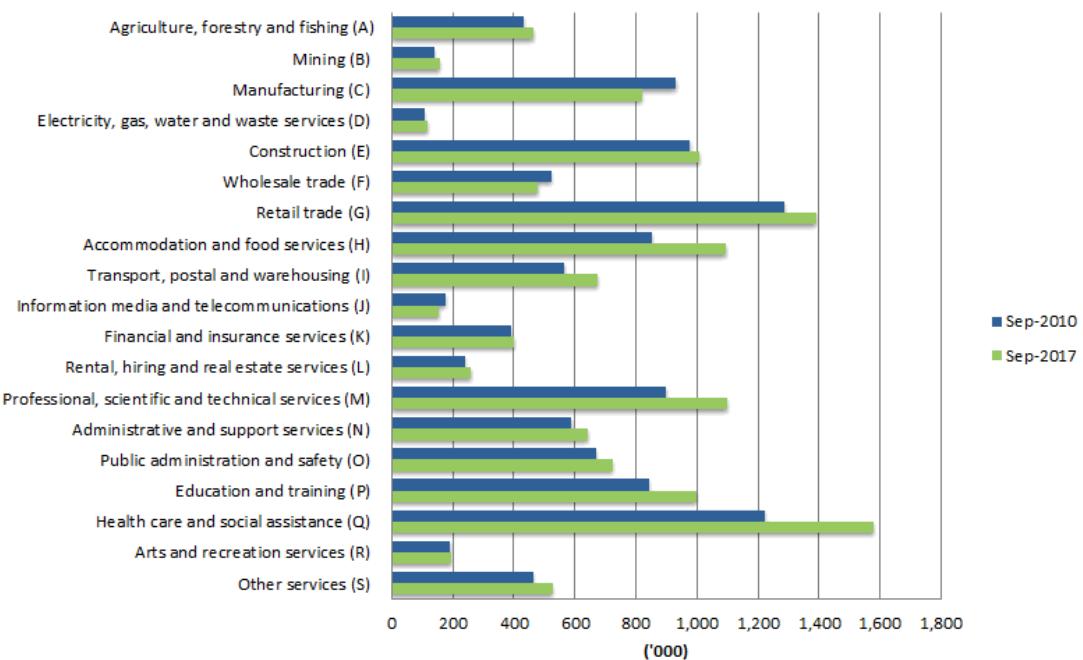
#### **Labour Account Filled Jobs, Proportion by Industry, September quarter 2017**

Industry	Labour Account Filled Jobs Sept qtr 2017 ('000)	Proportion of Total All Industries Sept qtr 2017 (%)
Agriculture, forestry and fishing (A)	501.4	3.7
Mining (B)	161.6	1.2
Manufacturing (C)	873.5	6.4
Electricity, gas water and waste services (D)	122.7	0.9
Construction (E)	1,045.8	7.6
Wholesale trade (F)	524.6	3.8
Retail trade (G)	1,459.6	10.6
Accommodation and food services (H)	1,181.2	8.6
Transport, postal and warehousing (I)	703.4	5.1
Information media and telecommunications (J)	171.3	1.2
Financial and insurance services (K)	428.0	3.1
Rental, hiring and real estate services (L)	287.8	2.1
Professional, scientific and technical services (M)	1,172.4	8.6
Administrative and support services (N)	818.8	6.0
Public administration and safety (O)	755.1	5.5
Education and training (P)	1,059.3	7.7
Health care and social assistance (Q)	1,668.5	12.2
Arts and recreation services (R)	214.8	1.6
Other services (S)	556.7	4.1
<b>Total All Industries</b>	<b>13,706.6</b>	<b>100.0</b>

#### **Labour Account Filled Jobs, Percentage Change by Industry, September quarter 2017**

Industry	Trend		Seasonally Adjusted	
	Jun qtr 2017 to Sept qtr 2017 % change	Sept qtr 2016 to Sept qtr 2017 % change	Jun qtr 2017 to Sept qtr 2017 % change	Sept qtr 2016 to Sept qtr 2017 % change
Agriculture, forestry and fishing (A)	1.9	3.7	3.0	4.3
Mining (B)	0.9	0.8	1.9	2.0
Manufacturing (C)	0.6	1.4	1.0	0.3
Electricity, gas water and waste services (D)	1.0	11.8	-2.6	11.6
Construction (E)	0.2	-1.1	-2.9	-1.8
Wholesale trade (F)	-1.2%	-3.0	-2.3	-6.5
Retail trade (G)	0.7	2.0	1.0	1.9
Accommodation and food services (H)	2.0	6.3	2.1	7.8
Transport, postal and warehousing (I)	3.7	6.2	5.7	8.6
Information media and telecommunications (J)	-1.0	-5.3	-1.0	-5.3
Financial and insurance services (K)	1.2	3.2	1.4	3.9
Rental, hiring and real estate services (L)	0.8	0.4	2.8	2.7
Professional, scientific and technical services (M)	2.5	12.4	3.2	13.1
Administrative and support services (N)	-0.2	2.7	-2.8	2.8
Public administration and safety (O)	0.5	1.9	1.1	2.4
Education and training (P)	1.2	2.5	2.0	2.8
Health care and social assistance (Q)	-0.5	2.4	-0.8	3.1
Arts and recreation services (R)	-3.3	-5.6	-3.4	-5.5
Other services (S)	1.6	4.9	0.9	3.3
<b>Total All Industries</b>	<b>0.8</b>	<b>3.0</b>	<b>0.7</b>	<b>3.2</b>

### TOTAL JOBS, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017

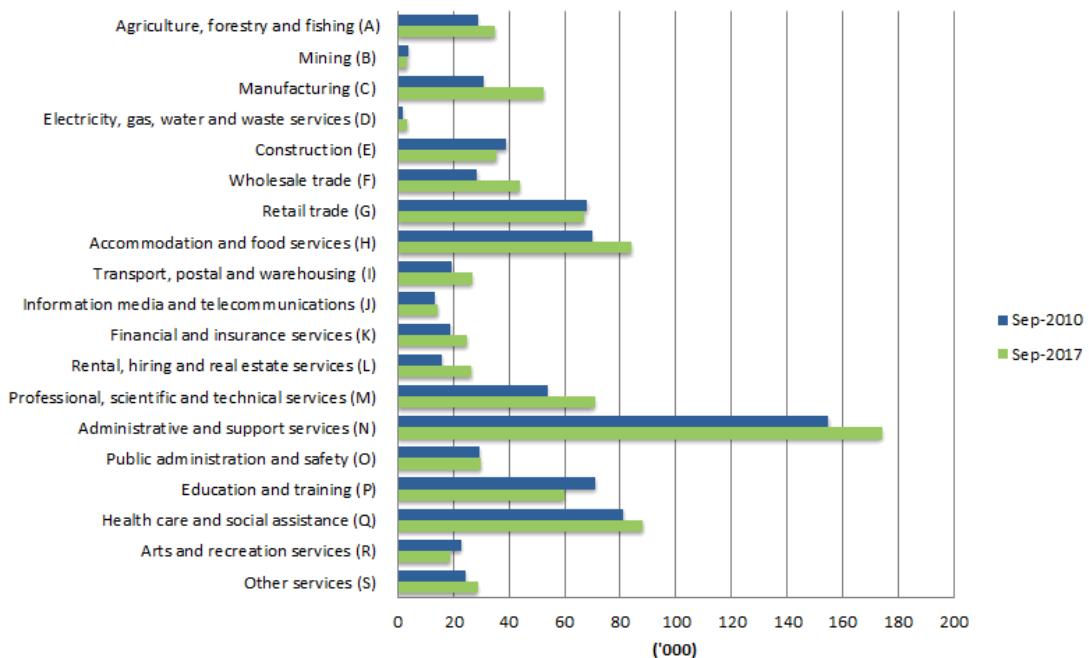


### SECONDARY JOBS

Secondary jobs can be held by persons who have their main job in the same or a different industry. In the September quarter 2017 there were 891,699 secondary jobs representing 6.4% of total jobs.

The top three industries who have the highest number of secondary jobs were Administrative and support services, Health care and social assistance and Accommodation and food services.

### SECONDARY JOBS, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017

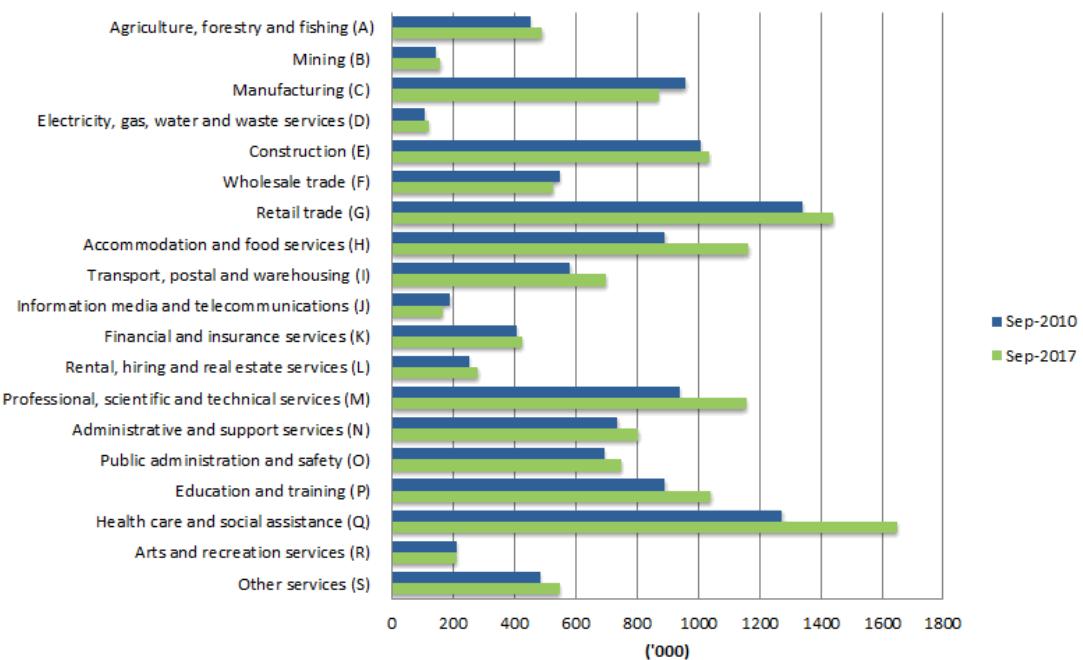


## Persons

### PERSONS

The Australian Labour Account produces the number of people employed in each industry from an industry perspective. As a result, the sum of employed persons in the Australian Labour Account across industry divisions does not equal the total number of people employed in the whole economy, given some people are employed in multiple industries.

### EMPLOYED PERSONS, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017

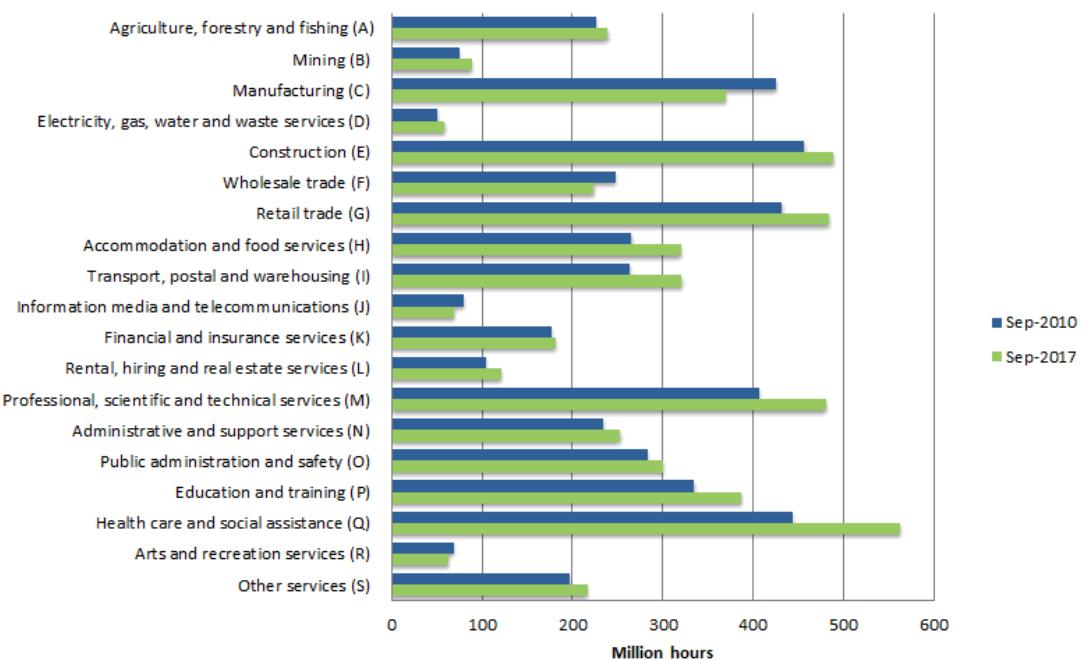


## Volume (Hours)

### VOLUME (HOURS)

Hours actually worked is the time spent in a job for the performance of activities that contribute to the production of goods and services during a specified short or long reference period.

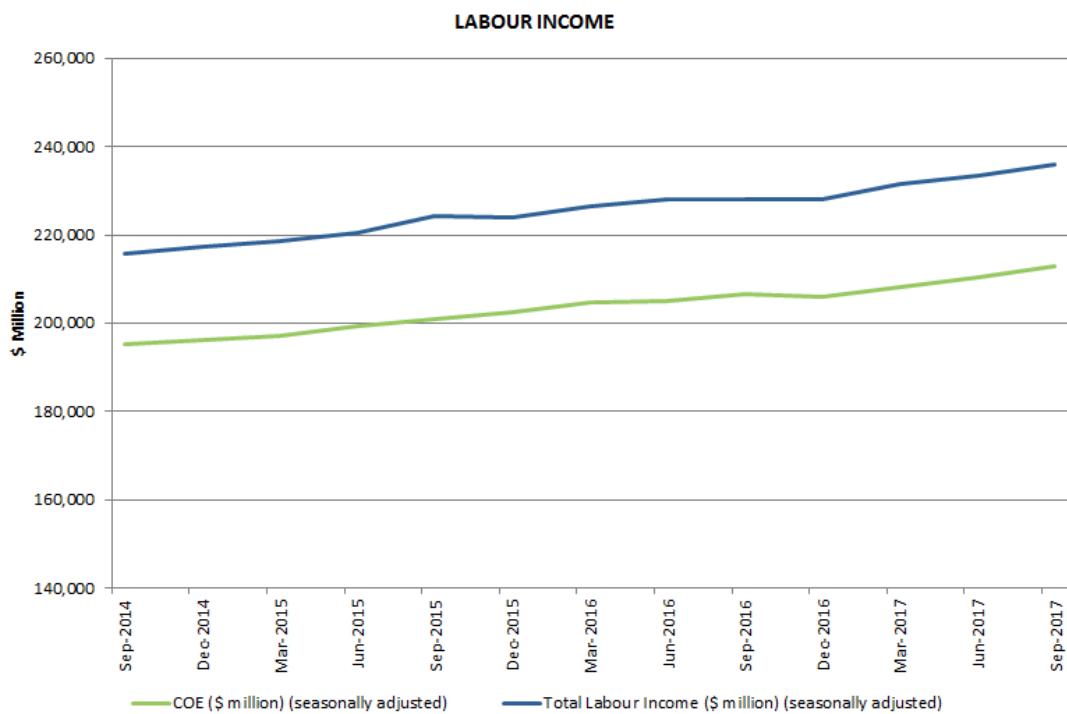
### HOURS ACTUALLY WORKED, BY INDUSTRY, SEPT QTR 2010 AND SEPT QTR 2017



## Payments

### PAYMENTS

The Labour Account Payments quadrant presents the costs incurred by enterprises in employing labour, and the incomes received by people from its provision. Total income consists of compensation of employees and labour income from self-employment. The addition of other related costs to employers to total income will derive total labour costs.



## About this Release

This publication presents experimental estimates for the Australian Labour Account for the period 2010 to 2017.

The Australian Labour Account provides a framework through which existing labour market data from different sources can be confronted and integrated, with the aim of producing a coherent and consistent set of aggregate labour market statistics.

The Australian Labour Account consists of four central quadrants of Jobs, Persons, Labour Volume and Labour Payments. Data in each table are available quarterly, and for the industry divisions defined in the Australian and New Zealand Standard Industry Classification (ANZSIC).

## Proportion of Vacant Jobs – A New Way to Analyse the Labour Market (Feature Article)

### SPOTLIGHT: PROPORTION OF VACANT JOBS - A NEW WAY TO ANALYSE THE LABOUR MARKET

The Beveridge Curve is widely used to depict the relationship between the unemployment rate and the job vacancy rate. While the Beveridge Curve can be constructed at the total economy level, it cannot be plotted for individual industries. The recently published Australian Labour Account provides a set of core macro-economic labour market variables at division level quarterly and subdivision level annually. This spotlight presents the Australian Beveridge Curve and introduces a valuable new labour market measure made possible by the Labour Account - the Proportion of Vacant Jobs.

### BEVERIDGE CURVE

The Beveridge Curve is used to map the relationship between the unemployment rate and the vacancy rate. The characteristics and location of the curve can demonstrate the position of the economy in the business cycle. During an economic downturn, when the job creation process is less prominent than the job destruction process, a downward movement along the Beveridge Curve is usually observed, corresponding to higher unemployment and lower vacancies. In contrast, a period of economic recovery tends to show an upward movement.

### PLOTTING THE BEVERIDGE CURVE

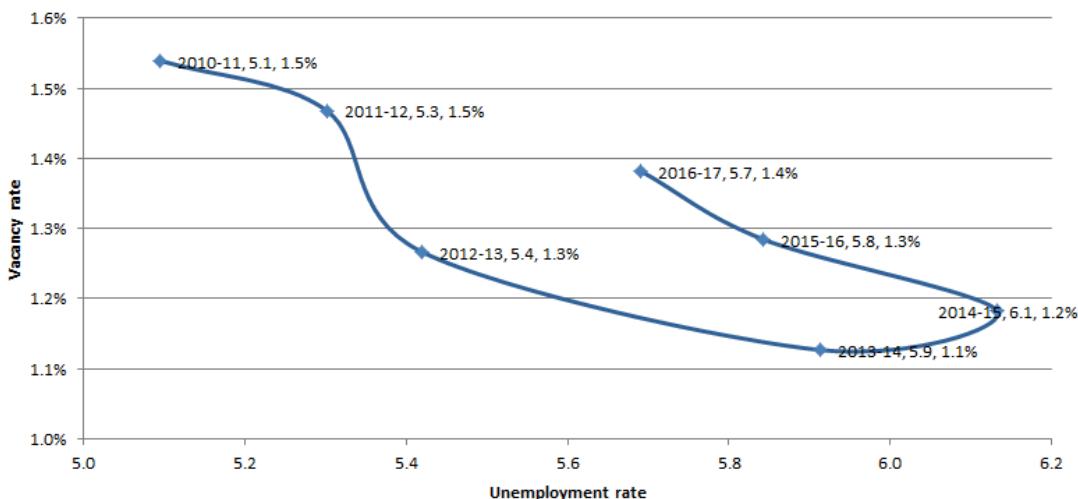
The Beveridge Curve is plotted using the following parameters:

$$\text{Labour Force (L)} = \text{Employed} + \text{Unemployed}$$

$$\text{Vacancy rate } \left( \frac{V}{L} \right) = \left( \frac{\text{Vacancy}}{\text{Labour Force}} \right)$$

$$\text{Unemployment rate } \left( \frac{U}{L} \right) = \left( \frac{\text{Unemployed}}{\text{Labour Force}} \right)$$

**Figure 1: Beveridge curve**



Source: Vacancy rate calculated using Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003); Unemployment rate from Labour Force, Australia (cat: 6202.0)

The Beveridge Curve shows an inverse relationship between the vacancy rate and the unemployment rate over the period between 2010-11 and 2013-14. During this period, the vacancy rate decreased and the unemployment rate increased in the Australian labour market. Since 2014-15, the job vacancy rate has started to increase. However, a subdued change in the unemployment rate, relative to the increased vacancy rate, has resulted in an outward shift of the Beveridge Curve.

An outward shift of the curve can be caused by any or a combination of the following factors:

- Decreased matching efficiency between labour supply and demand;
- Increased prevalence of skill mismatches;
- Increased participation;
- Higher share of long-term unemployed; or
- Increased job churn.

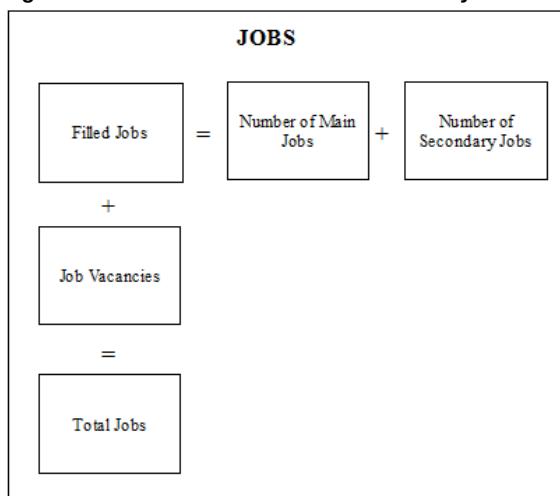
The Beveridge Curve can only be assessed at the total economy level when analysing changes and conditions of the labour market, given the limitation around defining an unemployment rate for an industry (that is, through assuming that the next job for an unemployed person will be in the industry that they most recently worked in).

The recently released quarterly Australian Labour Account enables analysis of the Australian labour market at the industry level by providing jobs data for each ANZSIC division quarterly and each subdivision annually. To take account of the limitation of the Beveridge Curve and to allow for industry level analysis, this spotlight introduces a new measure that uses the recently released Labour Account data.

#### LABOUR ACCOUNT JOBS

The Australian Labour Account provides data on the number of jobs, both filled and vacant. Filled jobs capture main jobs and secondary jobs providing a comprehensive picture of the dynamics of the labour market. Job statistics are compiled for each ANZSIC Industry subdivision, division and for the economy as a whole. Generally the following methods are applied to all levels of aggregation:

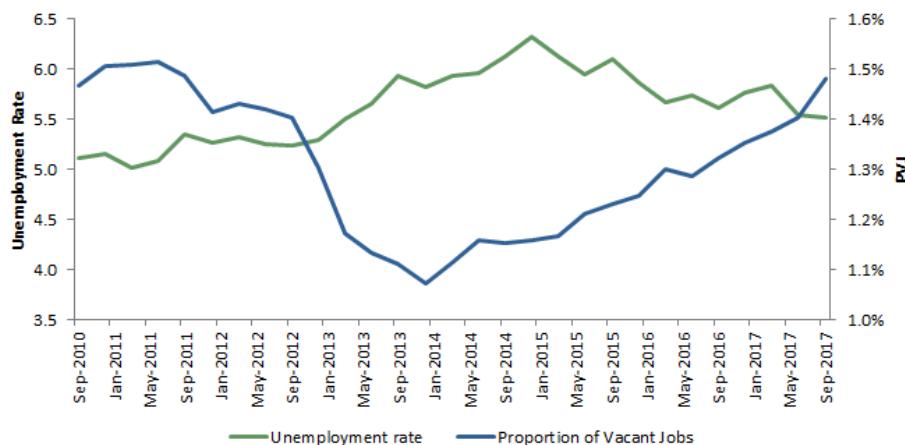
**Figure 2: Australian Labour Account identity relationship - Jobs**



The Australian Labour Account total jobs data enables the analysis of the proportions of vacant jobs (PVJ) in the economy and its

relationship to other major economic indicators. The PVJ measure is calculated as the number of vacant jobs as a proportion of total jobs for a given industry. For the period between 2010 and 2013, the fall in total PVJ was accompanied by a rise in the unemployment rate. Since 2014, the PVJ has been increasing while the unemployment rate has been steady.

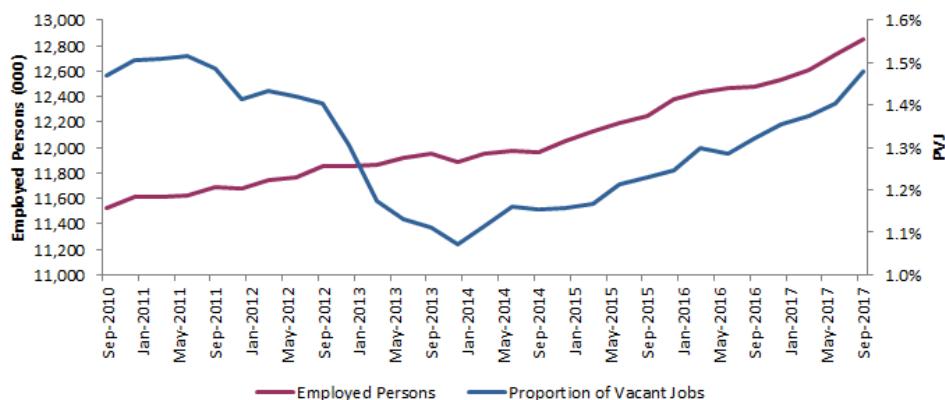
**Figure 3: Unemployment rate and proportion of vacant jobs - Seasonally adjusted**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003); Unemployment rate from Labour Force, Australia (cat: 6202.0)

Analysing the PVJ along with the number of employed persons can provide an in-depth picture of labour market dynamics. The relationship between the PVJ and employed persons can be observed in the following graph. Falling PVJ was accompanied by subdued employment growth during the period between 2010 and 2013. Since 2014, employment growth has accelerated with the rise of PVJ.

**Figure 4: Proportion of vacant jobs versus employed persons**



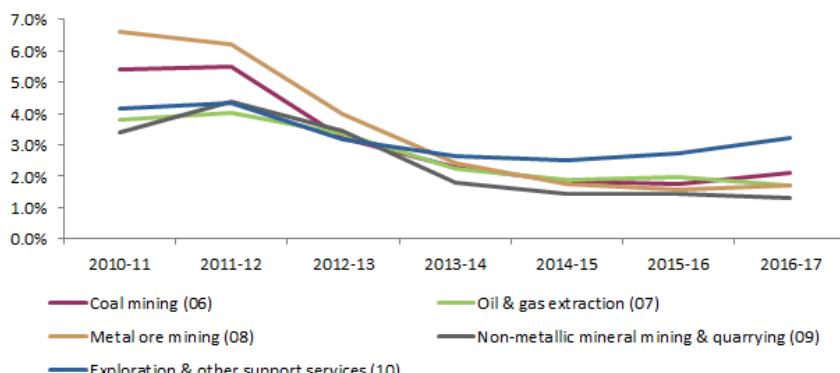
Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

The following are some illustrative examples of industries that show the value of the PVJ measure.

### Mining

PVJ for the mining industry reached its peak during 2011-2012. This was followed by a fall in the job vacancies as the mining industry made the transition to the production phase from the investment phase. Gross fixed capital formation for the mining industry increased during the same period as the PVJ, reaching its highest level in 2012-13 before declining afterwards (Figure 6).

**Figure 5: Proportion of vacant jobs in Mining**

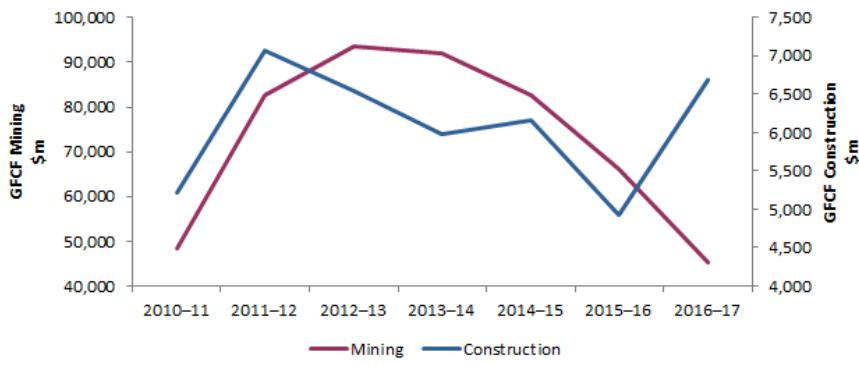


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Over the past few years since 2015, the number of employed persons along with PVJ provide an indication of a post-boom softening

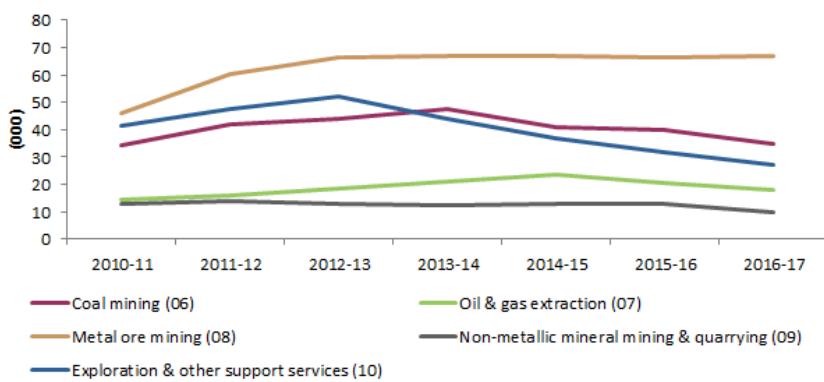
in the mining industry. In comparison to the mining boom period, both PVJ and employed persons have either fallen or remained flat for all of the mining subdivisions, highlighting the more subdued demand for labour, compared to earlier periods of growth.

**Figure 6: Gross fixed capital formation in Mining and Construction**



Source: Australian Industry, 2015-16 (cat: 8155.0)

**Figure 7: Employed persons in Mining**

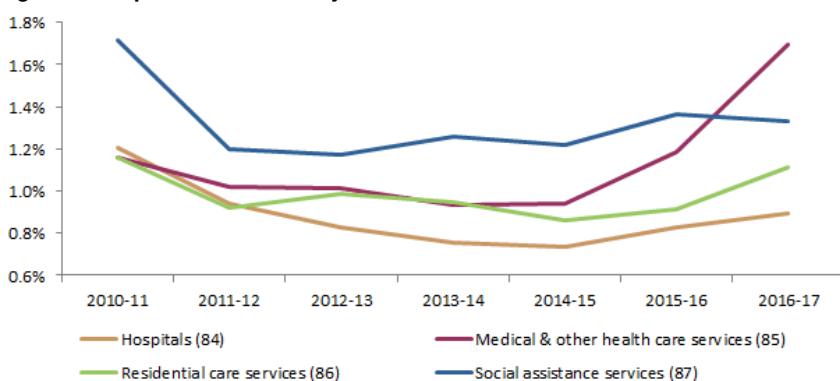


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

#### Health care and social assistance

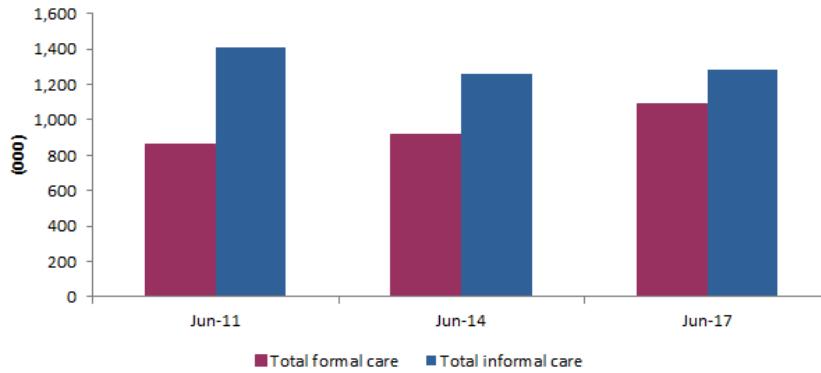
The PVJ for the Health care and social assistance industry was relatively flat over the five year period between 2010-11 and 2014-15. In recent years, the aging Australian population, the roll out of the National Disability Insurance Scheme, as well as the increased use of formal childcare services (figure 9), have contributed to increased labour demand in this industry, with increases in the PVJ seen across three of the four sub-divisions.

**Figure 8: Proportions of vacant jobs in Health care and social assistance**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

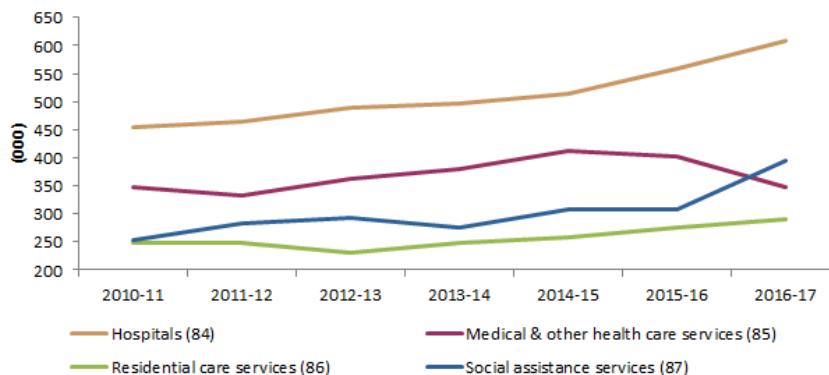
**Figure 9: Number of children attended formal and informal care**



Source: Childhood Education and Care, Australia (cat: 4402.0)

Since 2014-15, subdued employment growth in the Medical & other health care services subdivision along with an increased PVJ could potentially indicate a tightening labour market with strong labour demand, increased job churn or increased shortages of people with particular skills.

**Figure 10: Employed persons in Health care and social assistance**

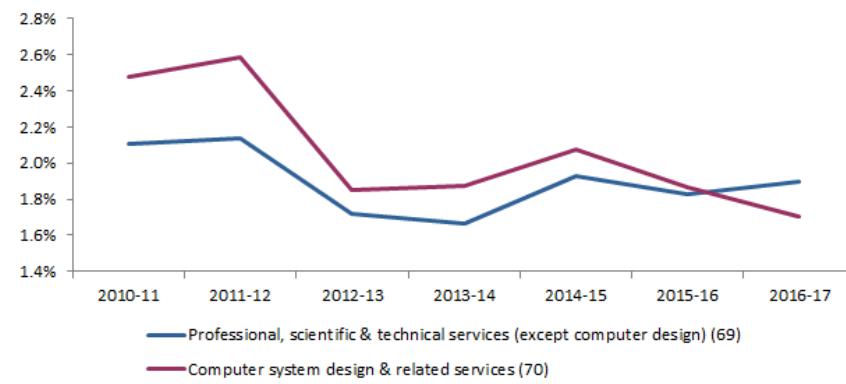


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

#### Professional scientific and technical services

The PVJ increased for the Professional scientific and technical services division from 2010-11 to 2011-12, which coincided with increased capital expenditure in mining and construction, and demand for professional services in these industries. In recent years, the PVJ has stabilised for subdivision 69, fluctuating between 1.8 per cent and 2.0 per cent.

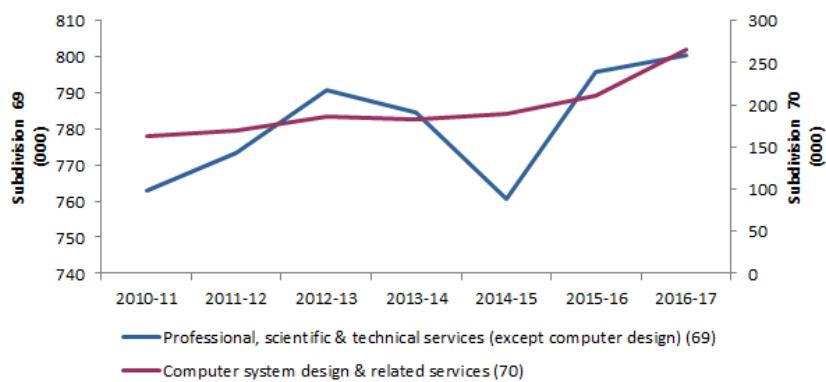
**Figure 11: Proportion of vacant jobs in Professional, scientific and technical Services**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Consistent with a high PVJ during the period between 2010-11 and 2011-12, the number of employed persons increased for subdivision 69. In recent years, even though the PVJ has been steady for subdivision 69 and has declined for subdivision 70, the number of employed persons increased for both subdivisions. This might indicate an increased number of contractors, a changing mix of workers as mining moves to production, or that the matching efficiency of recruitment processes has kept pace with increasing demand.

**Figure 12: Employed persons in Professional scientific and technical services**

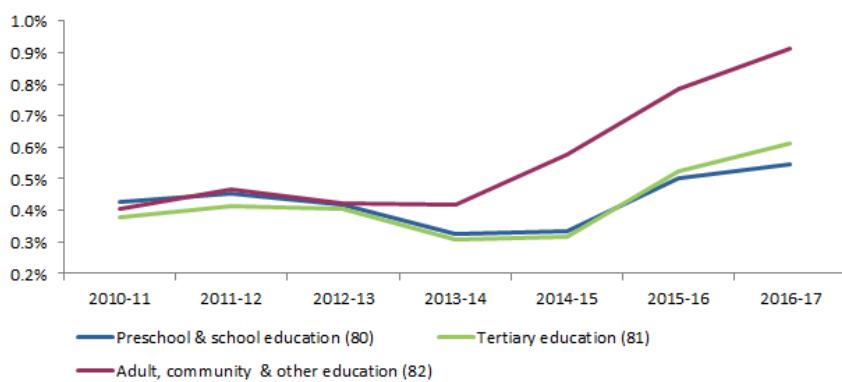


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

### Education and training

Since 2015, the PVJ increased for all three subdivisions in the Education and training industry, fuelled by increasing growth in the school aged population, growing demand from international students, and an increased demand for adult and community education.

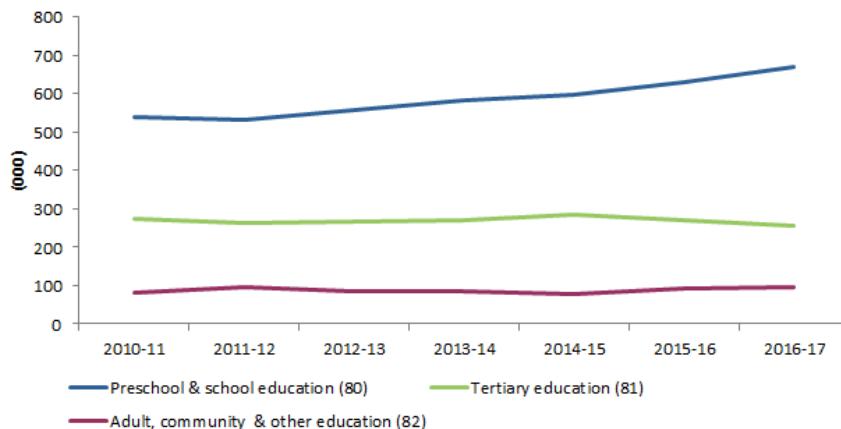
**Figure 13: Proportion of vacant jobs in Education and training**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Despite a strong increase in the PVJ, employment growth in Tertiary education has remained noticeably subdued. This might suggest a supply shock with higher employee turnover in this subdivision, the impact of skill shortages, or the matching efficiency. This might also be a consequence of higher participation in distance education.

**Figure 14: Employed persons in Education and training**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

This spotlight has shown the value of the PVJ as a key labour market measure. By compiling quarterly data at division level and annual data at subdivision level, the Australian Labour Account provides new insights into the complex interplay between supply and demand within the labour market.

## Impact of the Labour Account on productivity estimates (Feature Article)

### SPOTLIGHT: IMPACT OF THE LABOUR ACCOUNT ON PRODUCTIVITY ESTIMATES

Labour inputs are an important component for measuring productivity, both Multifactor Productivity and Labour Productivity. The Labour Account provides a conceptual framework to produce a coherent and consistent set of aggregate labour market statistics,

such as improved measures of hours worked. This article describes the impact of the Labour Account on productivity estimates for the market sector aggregate and 16 market sector industries. The Industry spotlight section covers more in-depth analysis for industries where the differences in hours worked are most pronounced.

## BACKGROUND

Estimates of labour productivity for industries require industry data from various sources, such as the Australian System of National Accounts (ASNA) and the Labour Force Survey (LFS). Data from the ASNA is primarily sourced from business surveys and the LFS completed by households. This can result in scope differences in industry output, including hours worked. Scope adjustments are applied in the Labour Account for unpaid contributing family workers, short term migrant workers and children under 15. This allows for improved coherence between industry hours worked and industry output. For more information about the adjustments in Labour Account, see [6150.0 - Australian Labour Account: Concepts, Sources and Methods, June 2018](#).

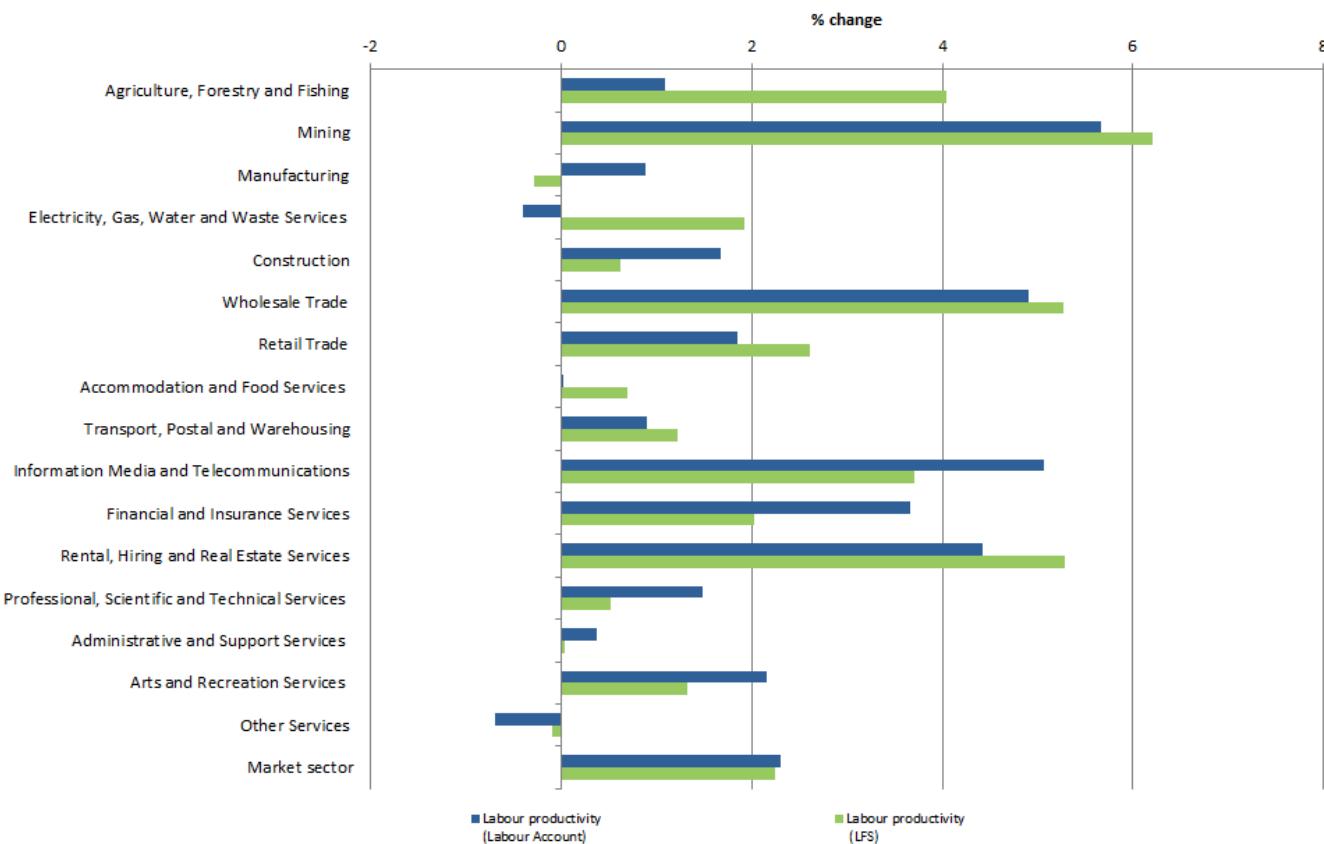
The LFS reports hours worked in a person's main job, as well as in all jobs. However, the hours worked by industry are allocated on the basis of a person's main job. The Labour Account, while maintaining consistency with the total number of hours worked, reallocates hours worked among industries to account for secondary job holders. This approach improves the alignment of industry output and labour inputs, thereby improving the quality of productivity estimates.

## ANALYTICAL COMPARISON

The analysis below shows the comparison made between two alternative estimates of labour productivity growth for the market sector aggregate and each of the 16 market sector industries (footnote 1). In each case, the same measure of output (i.e. industry Gross Value Added, or GVA) is used. The differences between the two labour productivity estimates reflect the differences in the hours worked measures used (footnote 2). In the first measure, the LFS estimates of hours worked are utilised. These hours worked estimates underlie the industry labour productivity estimates, published in Table 6 (Labour Productivity) of [Estimates of Industry Multifactor Productivity, 2016-17 \(cat. no. 5260.0.55.002\)](#). The other estimates of hours worked are sourced from the [Labour Account Australia, Quarterly Experimental Estimates, September 2017 \(cat. no. 6150.0.55.003\)](#), which cover hours worked of the market sector industries for the period of 2010-11 to 2016-17.

While the impact of the Labour Account experimental estimates on labour productivity is relatively small (averaging 0.06 per cent per annum) for the market sector aggregate, differences in labour productivity vary significantly across industries (as shown in Chart 1 below).

**Chart 1: Estimates of industry labour productivity change, annual average for 2011-12 to 2016-17**



Large productivity differences for the period were found in Agriculture, forestry and fishing, Electricity, gas, water and waste services, Information media and telecommunications and Financial and insurance services. As a result of differences between the hours worked series stronger productivity growth was observed in seven industries, whereas weaker labour productivity growth was observed over nine industries.

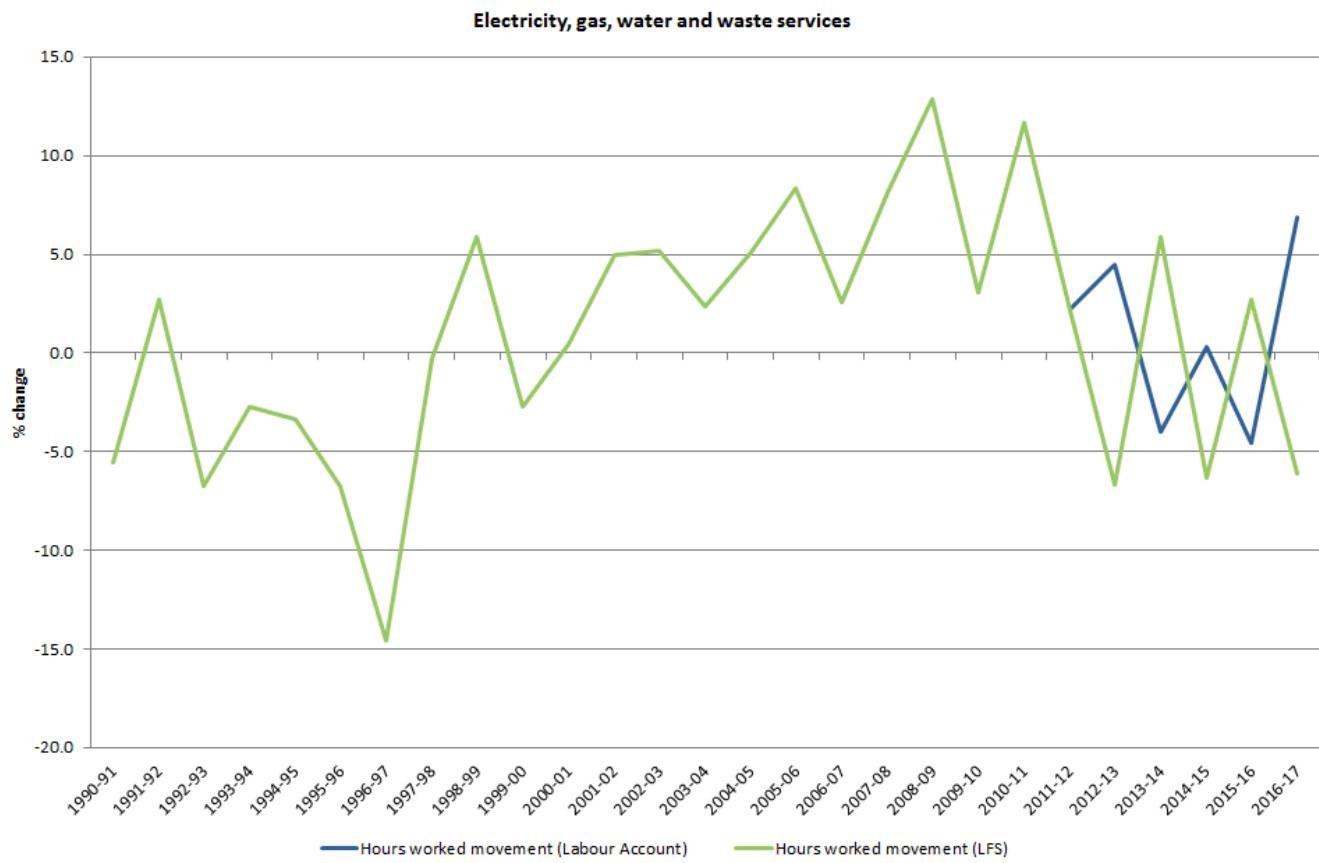
## INDUSTRY SPOTLIGHT

Annual growth rates of hours worked and labour productivity movements for Electricity, gas, water and waste services and Financial and insurance services produced noteworthy differences.

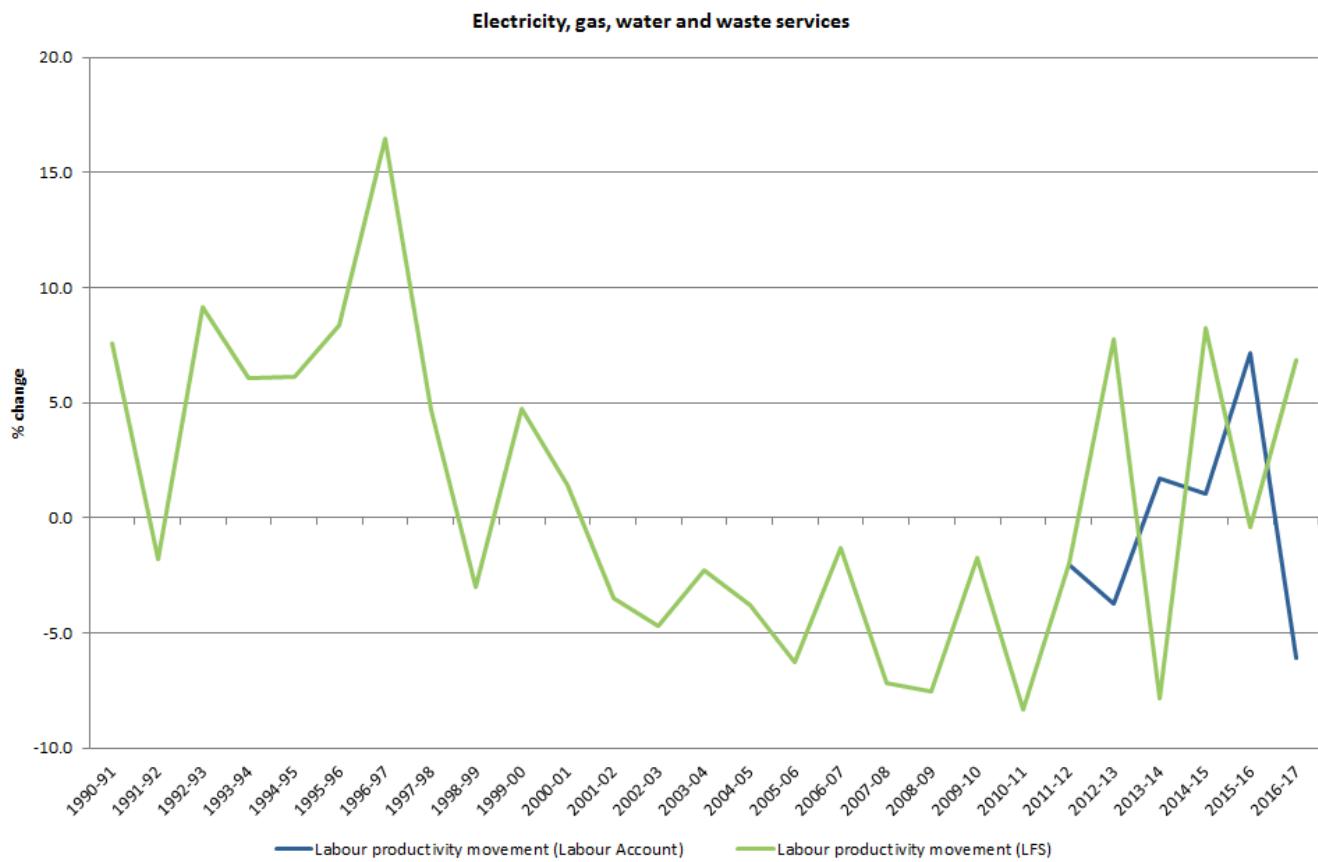
## **Electricity, gas, water and waste services**

Electricity, gas, water and waste services saw one of the largest differences on labour productivity growth when hours worked is sourced from the Labour Account. While the LFS hours worked recorded a decline (1.5 per cent per annum) during 2010-11 to 2016-17, the Labour Accounts presented a 0.8 per cent yearly gain in hours worked. These alternative labour inputs result in a decline in labour productivity (0.4 per cent per annum), as opposed to a solid labour productivity gain (1.9 per cent per annum) published for the period 2010-11 to 2016-17.

**Chart 2.A: Hours worked movement, 1990-91 to 2016-17**



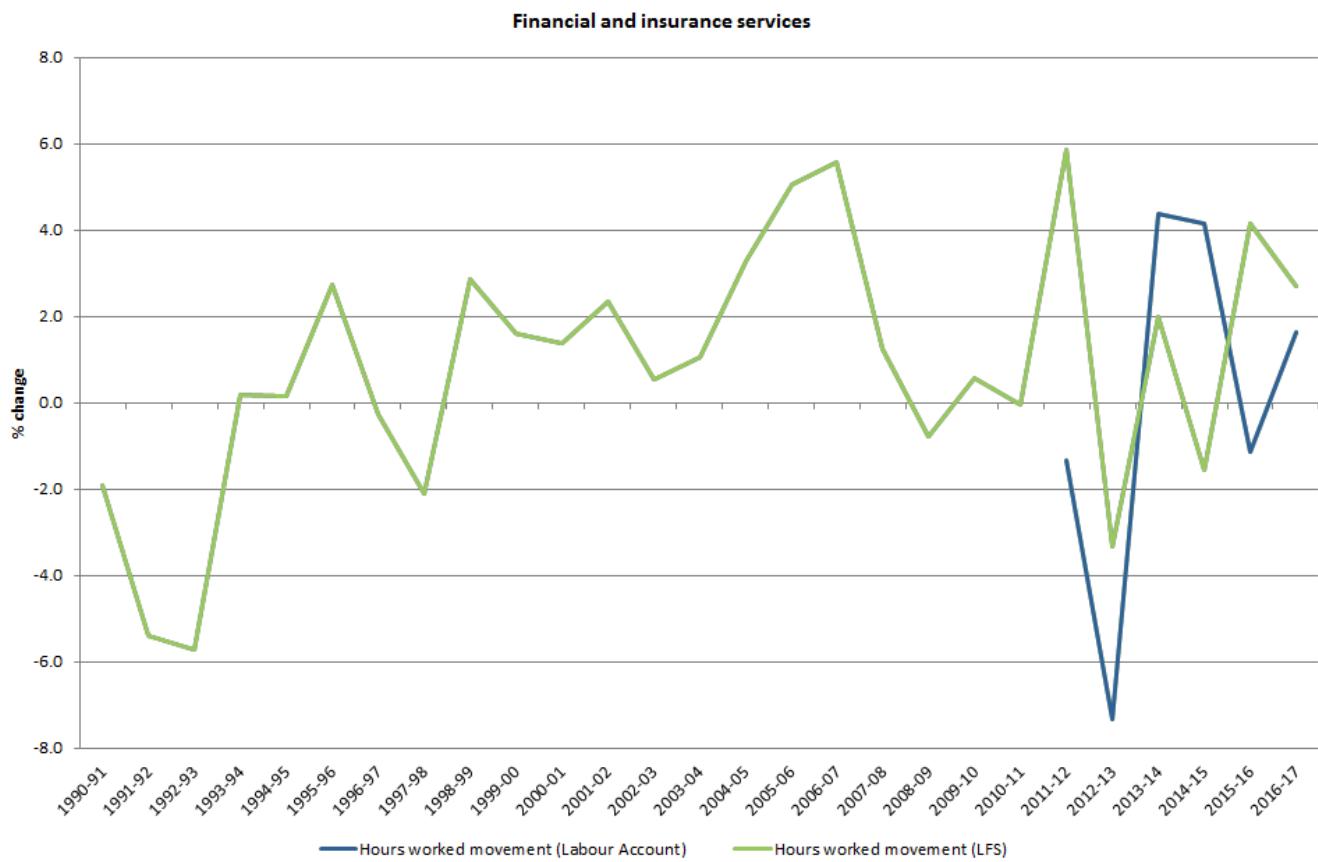
**Chart 2.B: Labour productivity movement, 1990-91 to 2016-17**



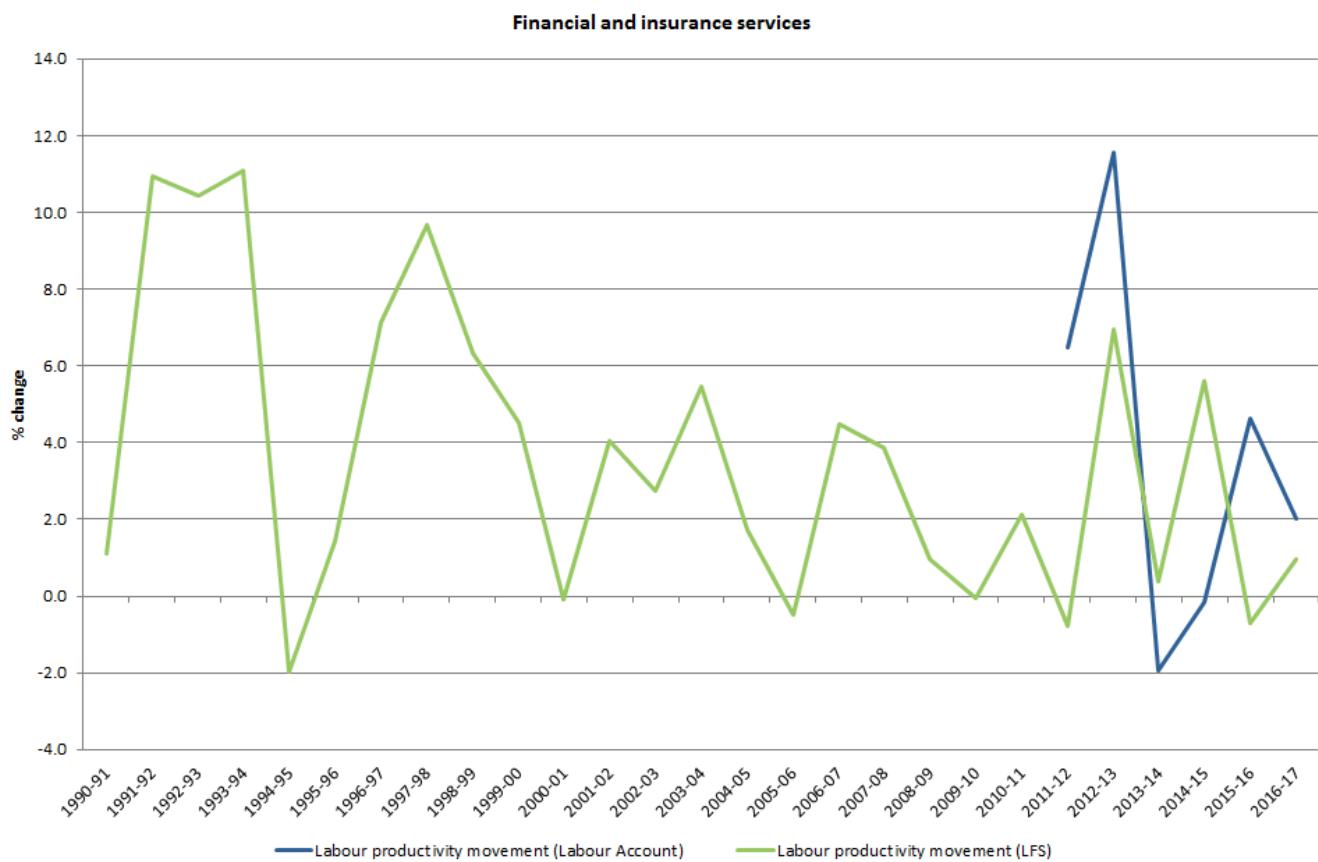
### Financial and insurance services

Among all industries, the largest positive difference in labour productivity growth was observed in Financial and insurance services, reflecting a much flatter growth in the Labour Account hours worked. LFS hours worked recorded an increase (1.6 per cent per annum) during 2010-11 to 2016-17, while the Labour Accounts presented almost no annual growth in hours worked. This change in hours worked growth translated into higher growth in labour productivity. Average labour productivity growth was raised from 2.0 to 3.7 per cent per annum during 2010-11 to 2016-17.

**Chart 3.A: Hours worked movement, 1990-91 to 2016-17**



**Chart 3.B: Labour productivity movement, 1990-91 to 2016-17**



#### FUTURE DEVELOPMENT

Drawing on the strengths of both household and business surveys, the development of the Labour Account provides an important improvement in the quality of industry labour input. Productivity statistics are an area that can directly benefit from the development of the Labour Account through increased coherence of industry hours worked and industry output. With further developments, such as a backcast of annual data, Labour Account hours worked data can potentially replace the current Labour Force industry estimates in

productivity statistics. The LFS reports hours worked in a person's main job as well as in all jobs. However, the hours worked by industry is allocated on the basis of a person's main job. The Labour Account, while maintaining consistency with the total number of hours worked, reallocates hours worked among industries to account for secondary job holders. This approach improves the alignment of industry output and labour inputs, thereby improving the quality of productivity estimates.

## FOOTNOTES

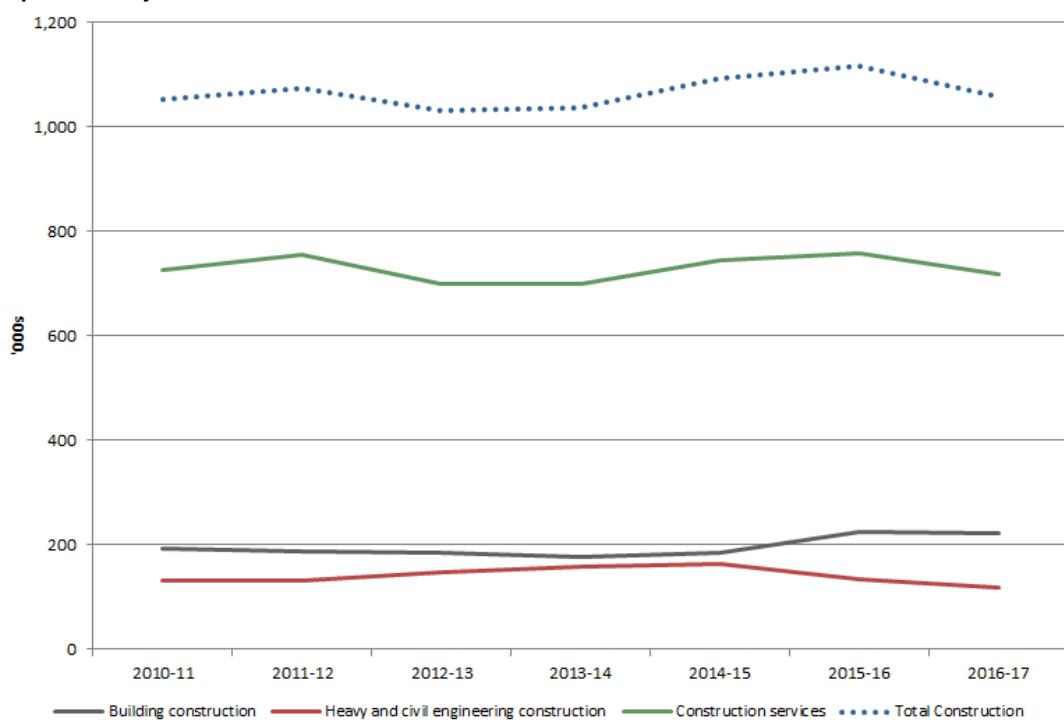
1. The estimates of hours worked in the Labour Account also impact industry MFP, which is determined by the labour income shares.
2. The analysis is based on GVA based labour productivity where no quality adjustment is made to labour input.

## Construction Industry (Feature Article)

### SPOTLIGHT: CONSTRUCTION INDUSTRY

Construction was the fifth largest employing industry in Australia with 1.1 million filled jobs in 2016-17, representing 7.9 per cent of all jobs. In 2010-11, 6,000 fewer jobs made the industry the third largest employing industry, accounting for 8.5 per cent of all jobs at that time. Jobs are distinct from employed persons, who may hold multiple jobs.

**Graph 1: Filled jobs**



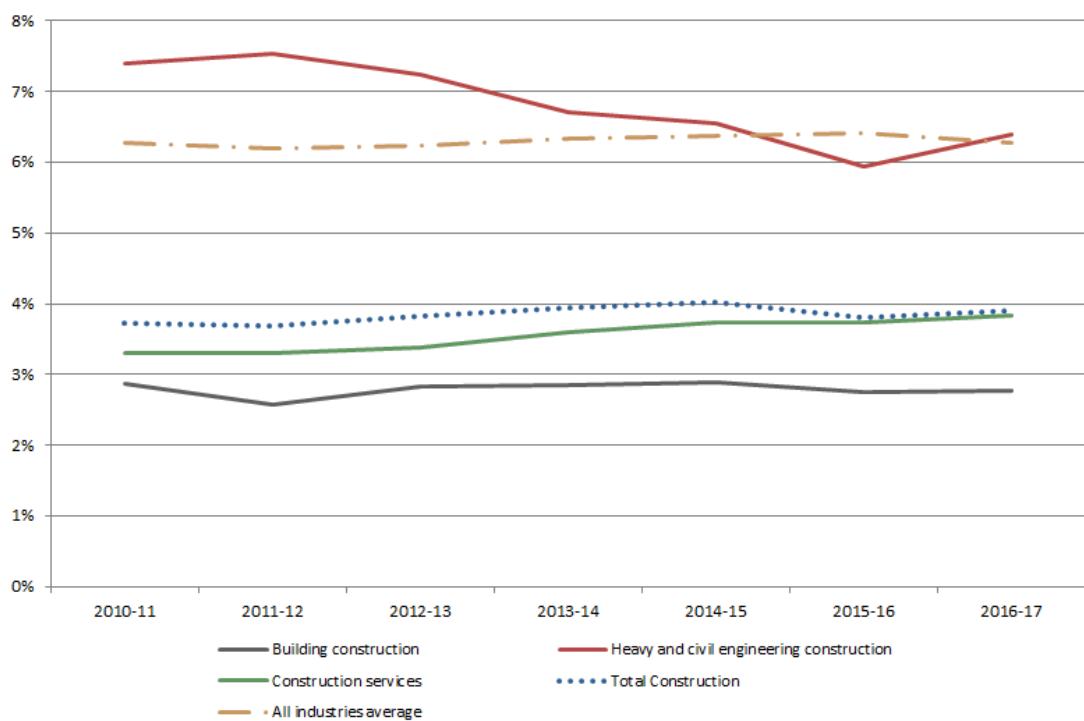
Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Filled Construction jobs grew by 0.6 per cent from 2010-11 to 2016-17, while jobs across all industries grew by 8.6 per cent. This mirrors the industry's share of the economy, which also stopped growing at the beginning of the decade.

In addition to providing information for the Construction industry, the Labour Account also now provides insights into the three subdivisions within it: Building construction, Heavy and civil construction and Construction services. Construction services accounted for 67.8 per cent of the industry's jobs in 2016-17. Many construction related 'trades' fall into this category. This was followed by Building construction at 21.0 per cent, and Heavy and civil engineering construction at 11.1 per cent.

Secondary jobs refer to jobs worked by people with multiple jobs, specifically the job(s) that they worked fewer hours in. In 2016-17, secondary jobs accounted for 3.9 per cent of all filled jobs in the Construction industry, representing around 4.9 per cent of all secondary jobs in Australia. While Construction services had the highest number of secondary jobs due to its large size, Heavy and civil engineering construction had the largest share of secondary jobs, peaking at 7.5 per cent in 2011-12 during the resources investment boom. The average across all industries in the economy was 6.3 per cent.

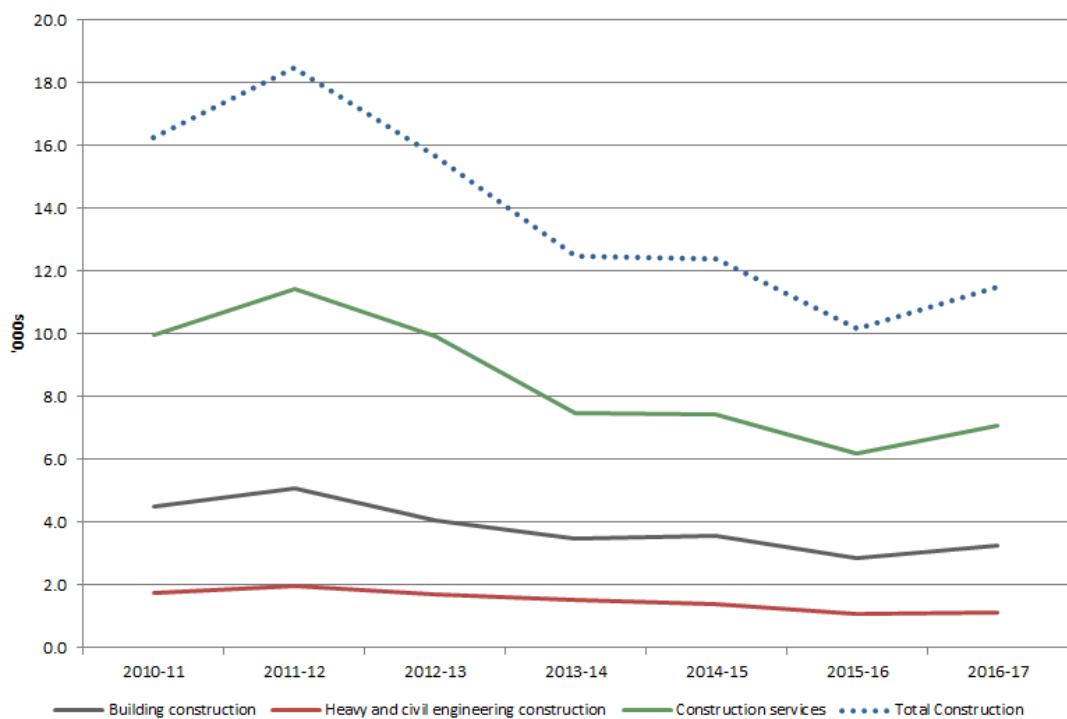
**Graph 2: Secondary jobs as a share of filled jobs**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.055.003)

Vacancies in Construction decreased by 45.1 per cent from 2011-12 to 2015-16, before recovering across all three subdivisions in 2016-17.

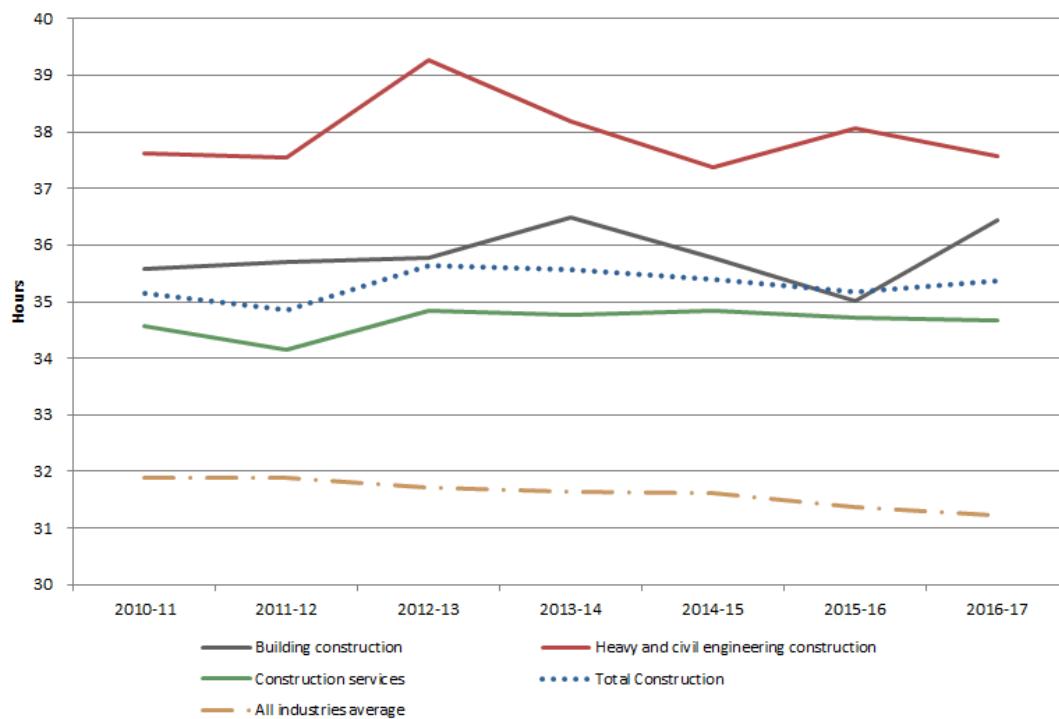
**Graph 3: Job vacancies**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.055.003)

The influence of the resources investment boom is evident in a 2012-13 spike in average weekly hours worked in Heavy and civil engineering construction.

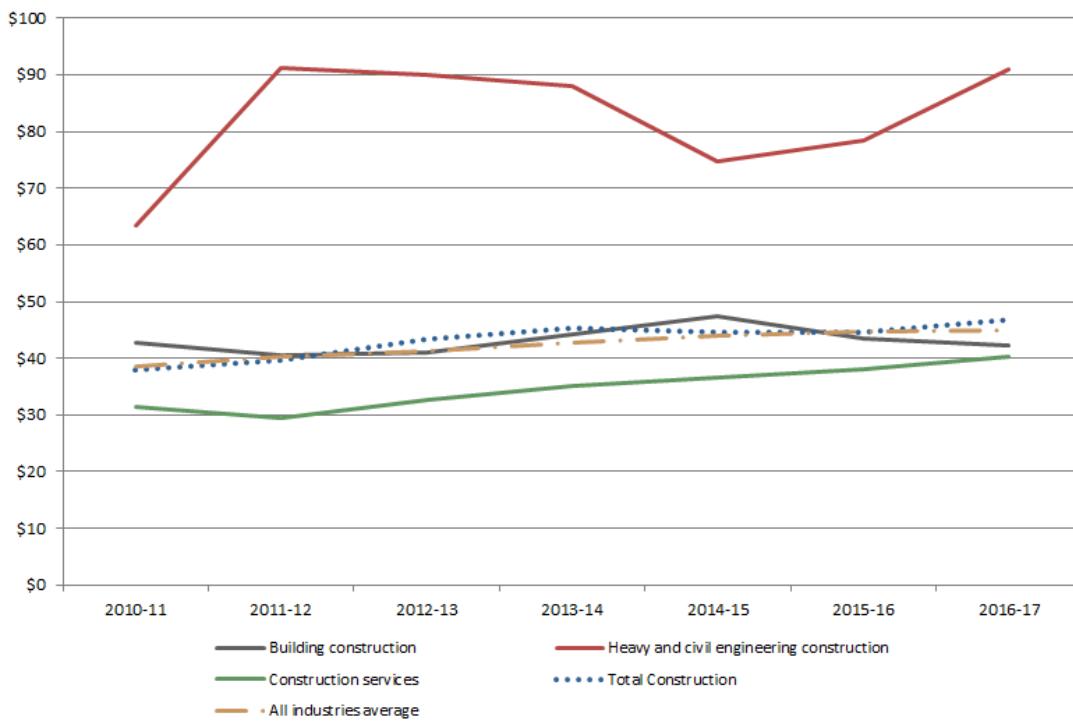
**Graph 4: Average weekly hours actually worked per employed person**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

This boom also influenced average hourly income in Heavy and civil engineering construction strongly, which peaked at \$91.11 in 2011-12.

**Graph 5: Average hourly income per employed person**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

As this spotlight has shown, the Australian Labour Account provides an overarching picture of the Australian labour market. Through bringing together a range of data, it is possible to produce highly coherent estimates of the number of jobs, people, hours worked and labour income in each industry.

Information on the Construction industry can be found in Table 6 (for quarterly information) and Table 27 (for annual information, including information for the three subdivisions).

## Education and Training Industry (Feature Article)

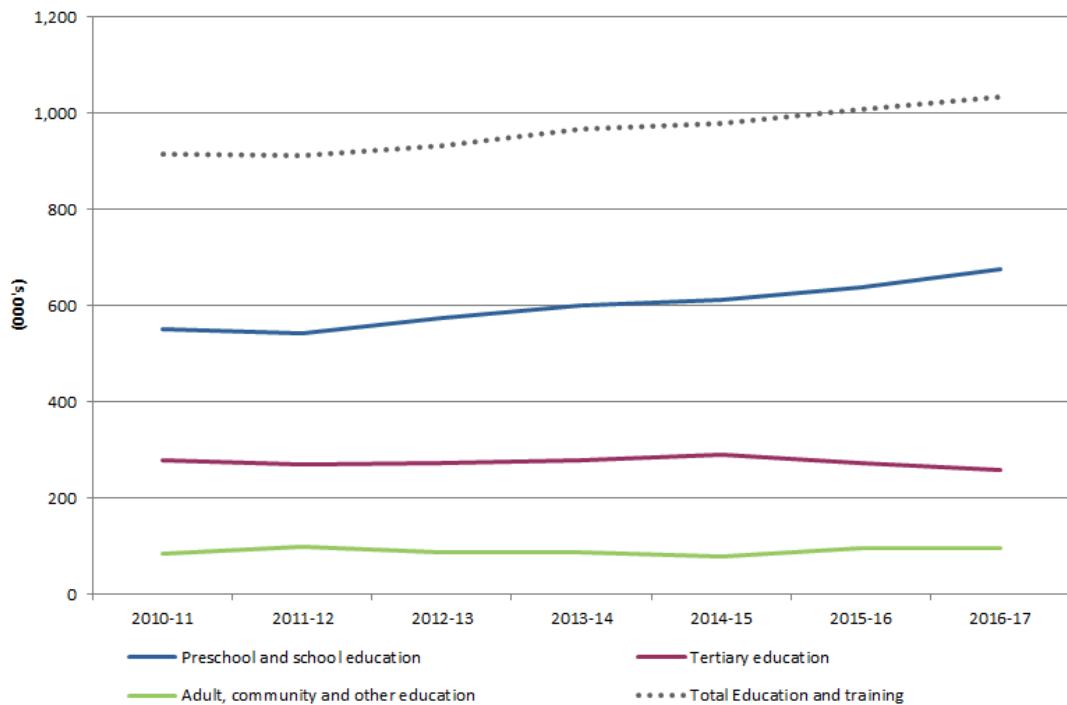
## SPOTLIGHT: EDUCATION AND TRAINING INDUSTRY

The latest data from the Australian Labour Account shows that there were over 1.0 million filled jobs in the Education and training industry, accounting for 7.7 per cent of all jobs.

In addition to providing information for the Education and training industry, the Labour Account also now provides useful insights into changes for the three subdivisions within it: Preschool and school education, Tertiary education, and Adult, community and other education. From this it is possible to see the relative contribution of the different parts of the industry to the total labour market over time.

Total jobs increased by 13.1 per cent from 2010-11 to 2016-17, making Education and training the fourth fastest growing industry over the period. This was driven by a growth of 22.6 per cent in Preschool and school education filled jobs, possibly due to a rise in the number of school aged children, and the standardisation of educator to child ratios by the National Quality Framework in 2012. There was also a 16.4 per cent increase in Adult, community and other education filled jobs. This may have been due to the combined demand for education support services, which are provided by Adult, community and other education, from the Preschool and school education and Tertiary education subdivisions.

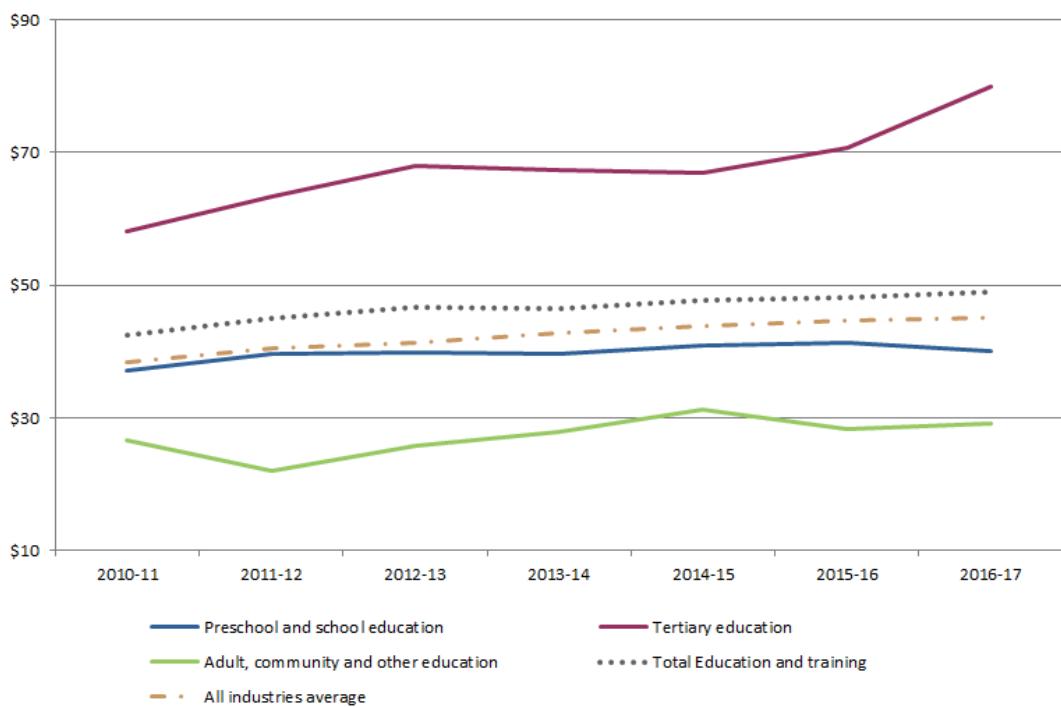
**Graph 1: Filled jobs**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Labour income includes social contributions from employers, as well as wages and salaries and income from self-employment. The average hourly income per Labour Account employed person in the Education and training industry rose by 14.9 per cent, from \$42.55 in 2010-11, to \$48.90 in 2016-17. Tertiary education saw the most growth, increasing 37.7 per cent to \$80.00. This was potentially driven by the increase in both international and domestic demand for services provided by this subdivision. Tertiary education has become more accessible in recent years, as advancements in the digital realm have enabled the shift to online delivery .

**Graph 2: Average hourly income per employed person**



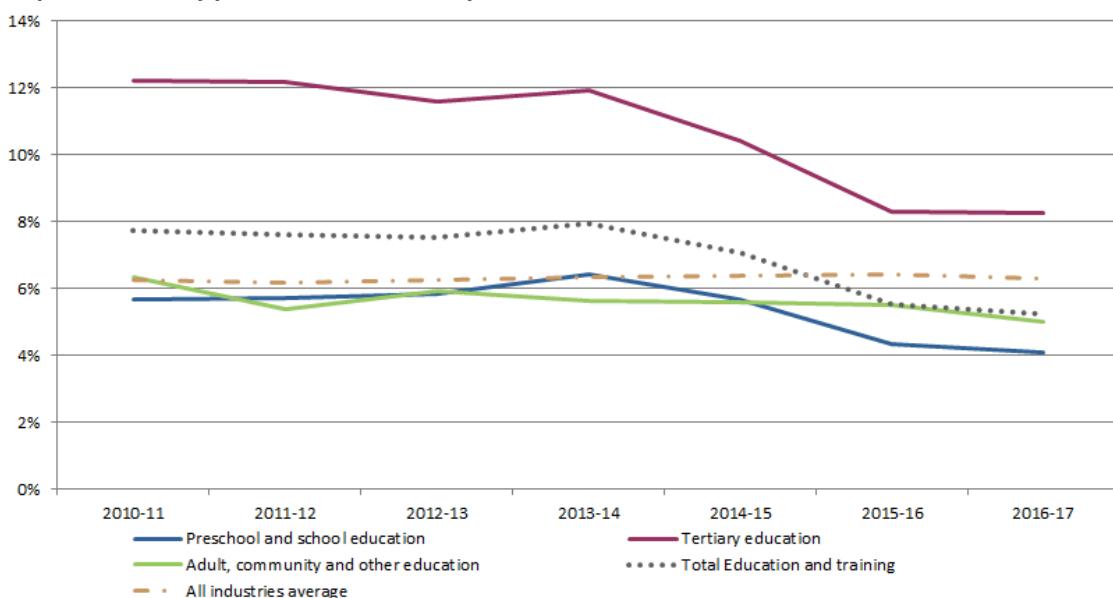
Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

A secondary job is any job worked by an employed person, other than their main job (note that people can have more than one secondary job). The Education and training industry accounted for 53,900 (or 6.4 per cent) of the 843,800 secondary jobs in Australia. This equated to 5.2 per cent of all Education and training filled jobs.

Secondary jobs have been in decline since 2013-14 for both Preschool and school education and Tertiary education. In 2016-17 there were 27,700 (down 11,000 since 2013-14) secondary jobs in Preschool and school education and 21,300 (down 11,700 since 2013-14) in Tertiary education.

Secondary jobs as a share of filled jobs in the Education and training industry decreased from 7.9 per cent in 2013-14 to 5.2 per cent in 2016-17. Tertiary education (the subdivision with the greatest proportion of secondary jobs to filled jobs) dropped from 11.9 per cent in 2013-14, to 8.2 per cent in 2016-17. Similarly, Preschool and school education dropped from 6.4 per cent in 2013-14, to 4.1 per cent in 2016-17. Adult, community and other education remained relatively steady throughout the period, fluctuating between 6.3 per cent in 2010-11, and 5.0 per cent in 2016-17.

### Graph 3: Secondary jobs as a share of filled jobs

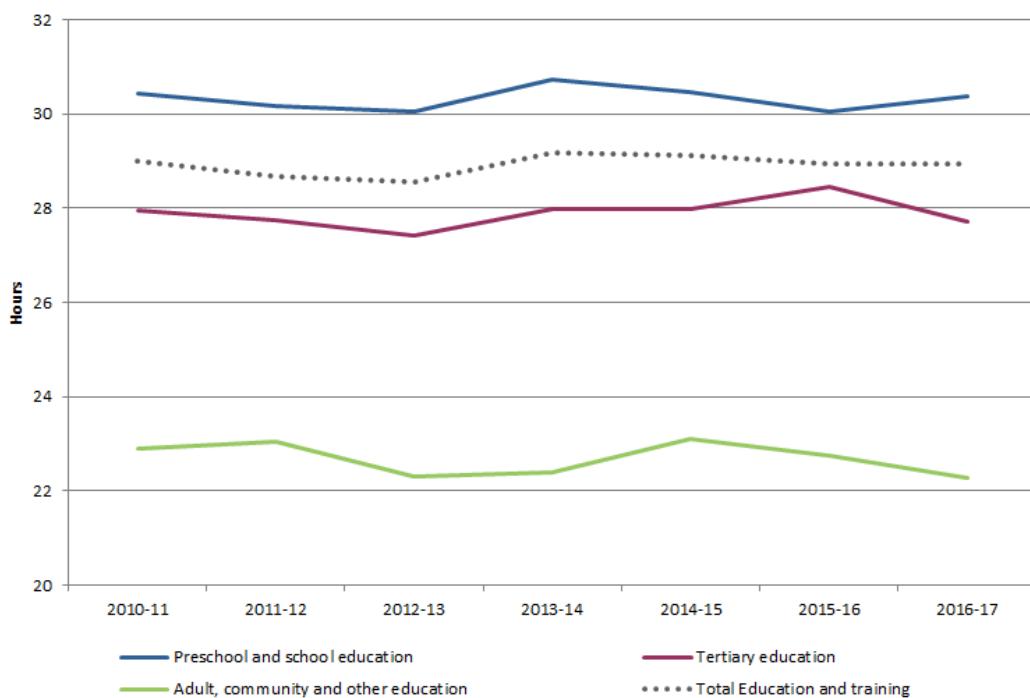


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

The number of average weekly hours actually worked per employed person remained steady across Education and training, decreasing by 0.2 per cent to 28.9 hours over the seven years since 2010-11. This decrease reflects a faster rate of growth in the number of employed persons (14.1 per cent) compared with the number of hours actually worked (13.9 per cent). Preschool and school education remained steady, with a decrease of 0.3 per cent to 30.4 hours over the period.

The digital disruption which may have affected the average hourly wage for Tertiary education may also have had an impact on the number of hours worked for that subdivision. As well as increasing the number of potential students, online delivery may also be accountable for the average weekly hours worked per employed person in Tertiary education declining by 2.6 per cent, to 27.7 hours in 2016-17.

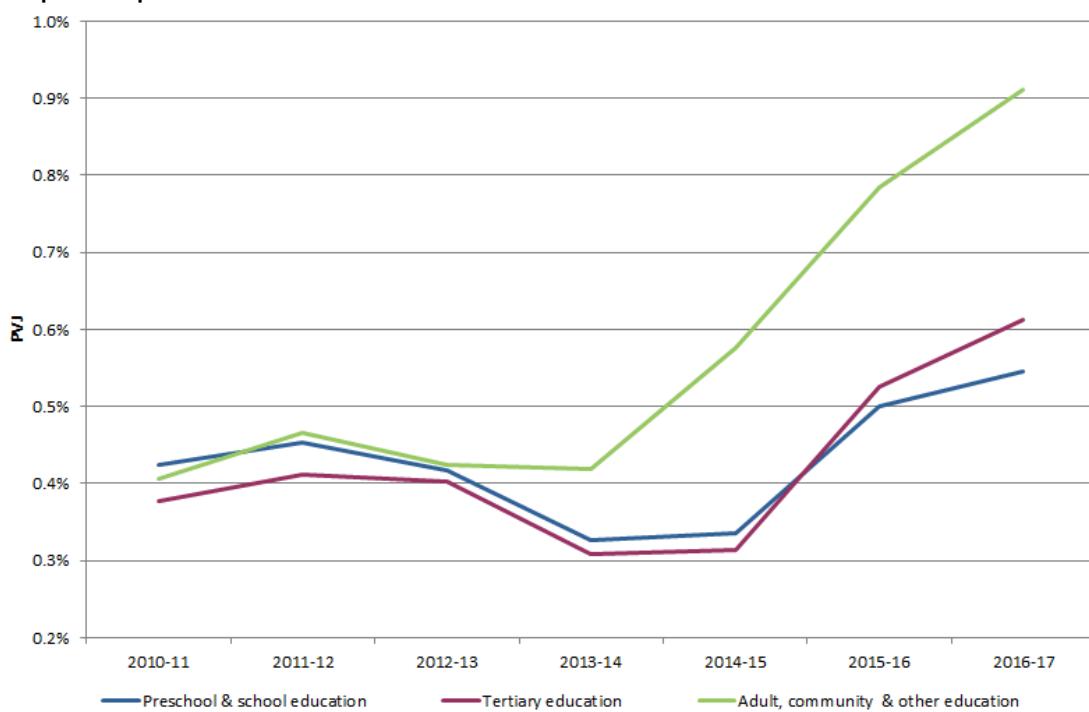
**Graph 4: Average weekly hours worked per employed person**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Job vacancies in Education and training rose by 65.3 per cent, from 3,800 vacancies in 2010-11 to 6,200 vacancies in 2016-17. This upwards trend was consistent across all three subdivisions. The Proportion of Vacant Jobs (or PVJ) is calculated from the ratio of Job Vacancies to the industry Labour Force. There was an increase in the PVJ in recent years in all three Education and training subdivisions, most prominently in Adult, community and other education which increased from 0.4% in 2013-14, to 0.9% in 2016-17. See Proportion of Vacant Jobs - A New Way to Analyse the Labour Market for further information on PVJ for a more in-depth explanation and analysis of the PVJ.

**Graph 5: Proportion of Vacant Jobs**



Source: Proportion of Vacant Jobs - A New Way to Analyse the Labour Market, Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

As this spotlight has shown, the Australian Labour Account provides an overarching picture of the Australian labour market. Through bringing together a range of data, it is possible to produce highly coherent estimates of the number of jobs, people, hours worked and labour income in each industry.

Information on the Education and training industry can be found in Table 17 (for quarterly information) or Table 38 (for annual information, including information for the three subdivisions).

## Health Care and Social Assistance Industry (Feature Article)

### SPOTLIGHT: HEALTH CARE AND SOCIAL ASSISTANCE INDUSTRY

The Health care and social assistance industry was Australia's largest employer in 2016-17, with around 1.6 million filled jobs. Its share of total filled jobs in the Australian labour market increased from around 10.8 per cent in 2010-11 to around 12.4 per cent in 2016-17.

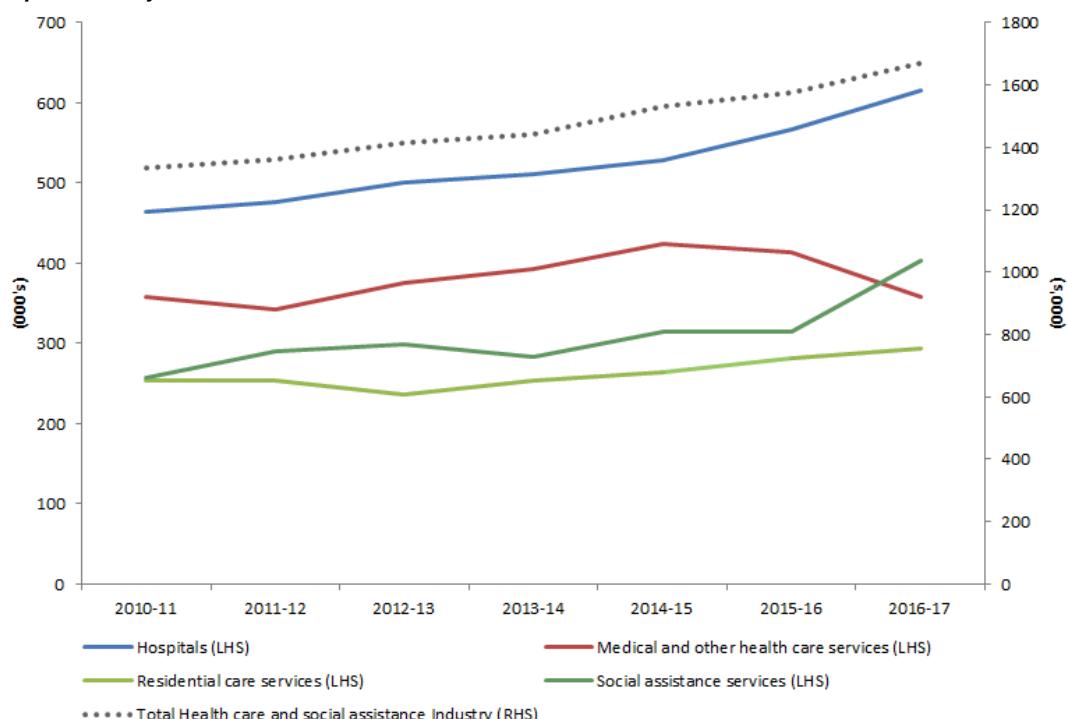
In addition to being the largest employer, the Health care and social assistance industry was also the biggest contributor to Australia's job growth over the period, accounting for nearly one third of total job growth over the past six years, or 336,000 of the 1,063,000 extra jobs in Australia.

In addition to providing information for the Health care and social assistance industry, the Labour Account also now provides useful insights into changes for the four subdivisions within it: Hospitals, Medical and other health care services, Residential care services, and Social assistance services. From this it is possible to see the relative contribution of the different parts of the total labour market over time.

Since 2010-11, the subdivision with the greatest number of jobs has been Hospitals. In 2016-17, there were around 615,000 filled jobs, which was around 37 per cent of jobs in the industry.

The fastest growing subdivision between 2010-11 and 2016-17 was Social assistance services, which increased by 56.6 per cent, from 257,900 jobs to 403,700 jobs. Much of this growth was seen in the most recent year, with jobs increasing by 28.4 per cent, from 314,400 jobs in 2015-16 to 403,700 jobs in 2016-17.

**Graph 1: Filled jobs**

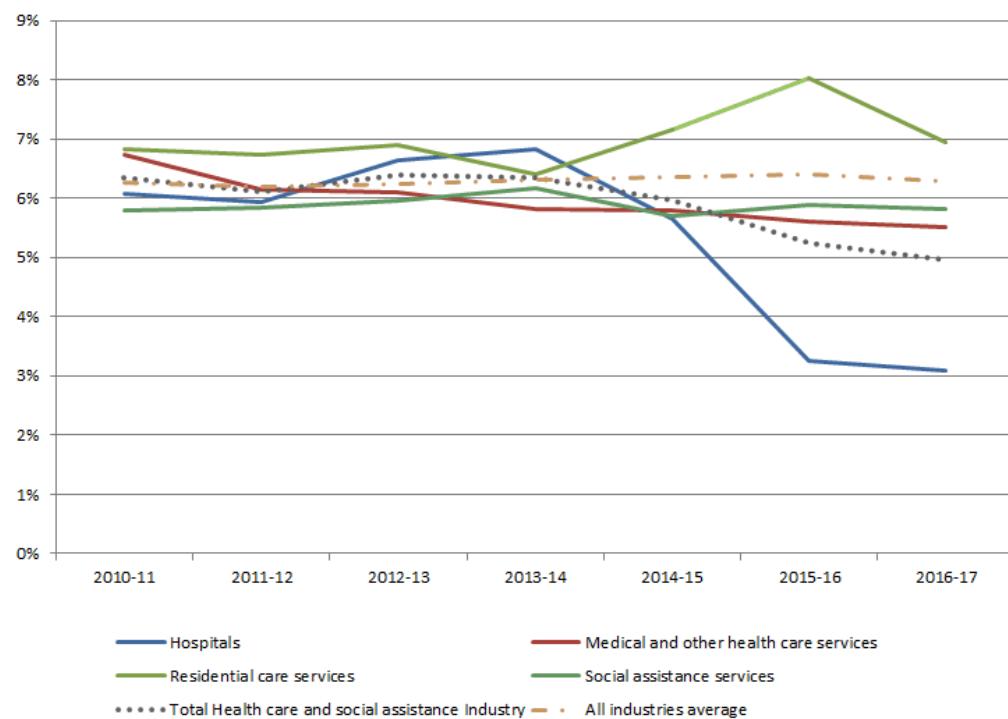


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.055.003)

'Secondary jobs' refers to jobs worked by people with multiple jobs at the same time, and the job that they worked fewer hours in. In 2016-17, secondary jobs accounted for 5.0 per cent of all filled jobs in the Health care and social assistance industry. These secondary jobs represented around 9.8 per cent of all secondary jobs in Australia, second only to the Administrative and support services industry (18.9% of all secondary jobs).

Interestingly, the share of filled jobs in Health care and social assistance that were worked as secondary jobs decreased between 2010-11 and 2016-17, from 6.3 per cent to 5.0 per cent, suggesting a shift towards primary jobs. This was most pronounced for jobs in Hospitals, where the rate decreased from 6.1 per cent in 2013-14, down to 3.1 per cent in 2016-17.

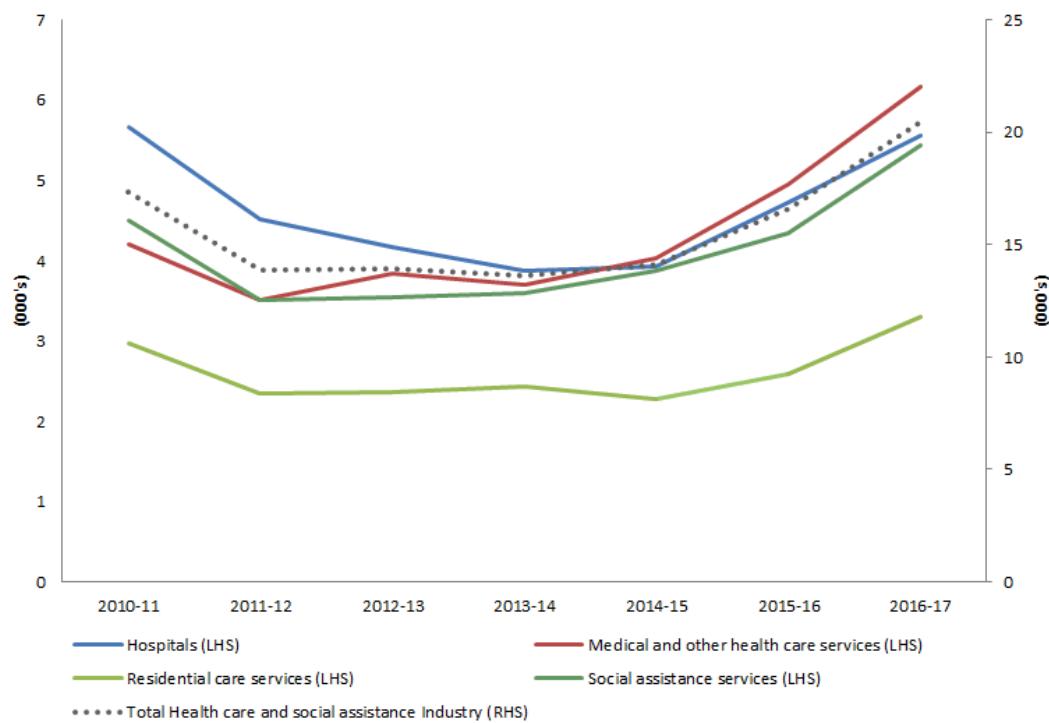
**Graph 2: Secondary jobs as a share of filled jobs**



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

Job vacancies in the Health care and social assistance industry increased in recent years, with three consecutive annual rises between 2013-14 and 2016-17. This was observed across all four subdivisions.

**Graph 3: Job vacancies**

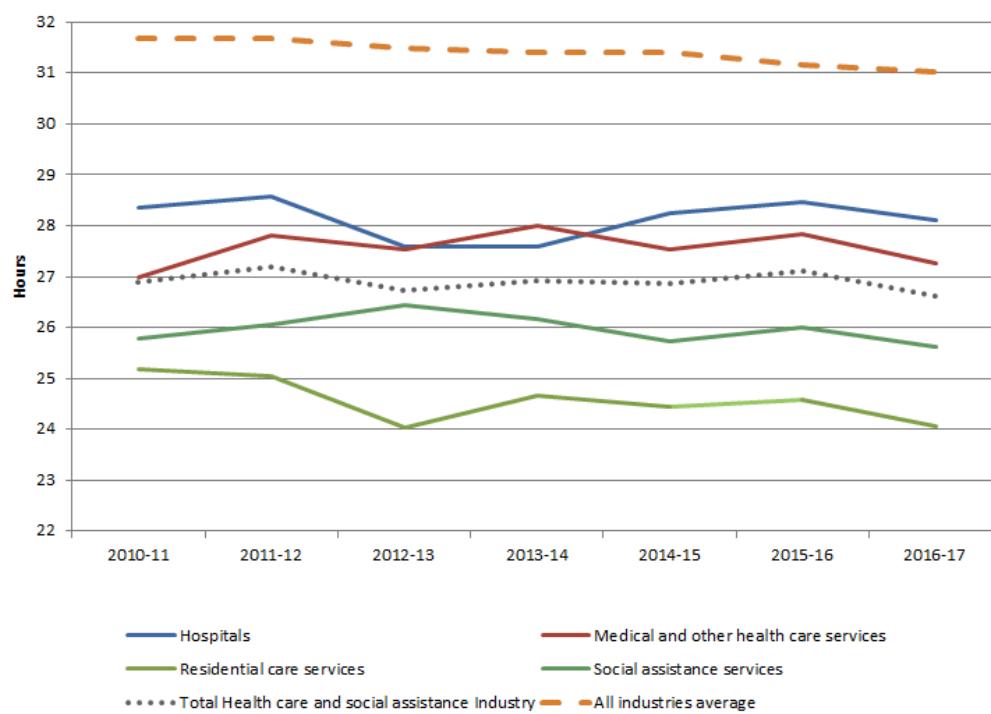


Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

The average weekly hours worked in Health care and social assistance remained relatively stable between 2010-11 and 2016-17, decreasing slightly from 26.9 hours to 26.6, or 0.3 hours per week. This reduction was less than the change in average weekly hours worked at the economy level, which decreased from 31.7 to 31.0, or 0.7 hours per week.

In 2016-17, the average weekly hours worked was greatest in Hospitals (28.1 hours) and lowest in Residential care services (24.0 hours).

**Graph 4: Average weekly hours worked per employed person**



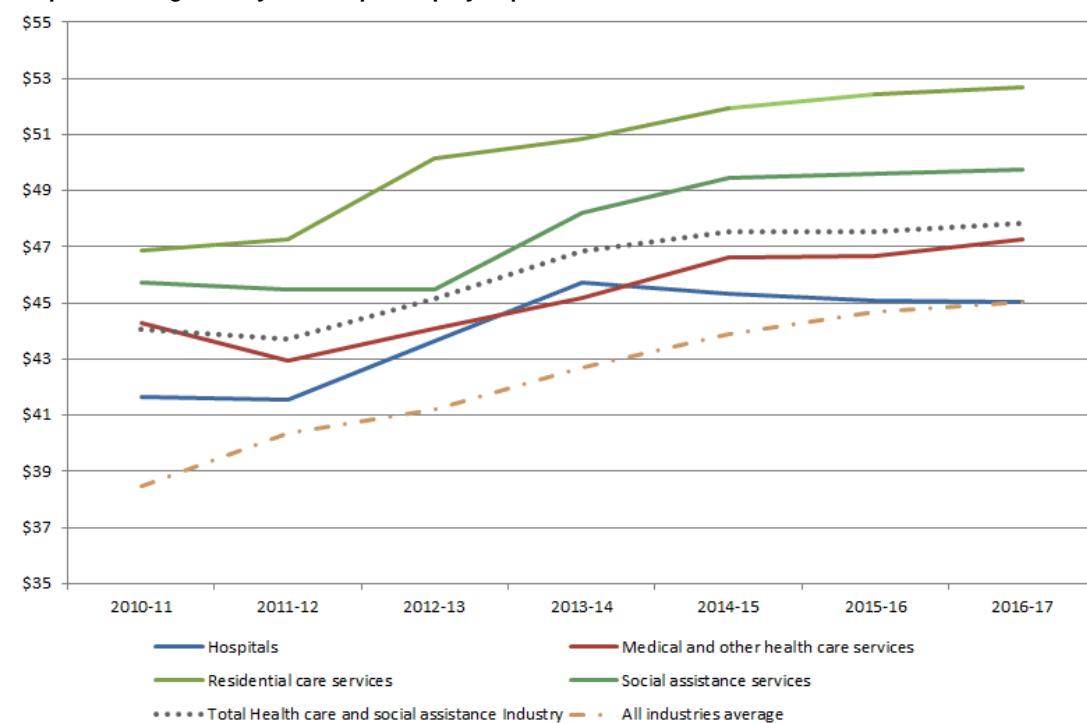
Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

'Labour income' includes compensation of employees and labour income from self-employment. Between 2010-11 and 2016-17, total labour income for the Health care and social assistance industry increased by 35.3 percent, in line with the strong growth in jobs over the period.

Over this same period, the average hourly income per employed person in the Health care and social assistance industry rose by 8.6 per cent, from \$44.05 to \$47.84. This average figure rose for all subdivisions except for Hospitals, which remained stable.

Over the past seven years, Residential care services has been the highest paying subdivision in the industry, with the figure at \$52.68 per hour in 2016-17. In contrast, Hospitals has been the lowest, at \$45.05 per hour in 2016-17.

#### Graph 5: Average hourly income per employed person



Source: Labour Account Australia, Quarterly Experimental Estimates (cat: 6150.0.55.003)

As this spotlight has shown, the Australian Labour Account provides an overarching picture of the Australian labour market. Through bringing together a range of data, it is possible to produce highly coherent estimates of the number of jobs, people, hours worked and labour income in each industry.

Information on the Health care and social assistance industry can be found in Table 18 (for quarterly information) and Table 39 (for annual information, including information for the four subdivisions).

## History of Changes

**06/11/2020**

Amendments made to correct unit label on one graph - Hours actually worked. There are no revisions to any time series or excel spreadsheets.

**31/07/2018**

Additional spotlight on the Construction industry added.

**24/07/2018**

Additional spotlights on the Education and training industry and Health care and social assistance industry were added.

**17/07/2018**

Annual data tables and a spotlight on The Impact of the Labour Account on Productivity Estimates were added.

## Explanatory Notes

### Explanatory Notes

#### EXPLANATORY NOTES

##### INTRODUCTION

**1** The purpose of the Australian Labour Account is to support macro-economic analysis requiring data on peoples' participation in paid employment and related production over time. Its development provides an opportunity to significantly improve the quality of aggregates such as the number of jobs occupied within each industry, measures of hours worked, and labour productivity growth.

**2** The concepts and definitions underlying the Australian Labour Account are built on International Labour Organisation (ILO) fundamentals, and expands them to ensure consistency with the System of National Accounts (SNA08). The result provides a set of core macro-economic labour market variables derived through data integration, with both an industry focus and time series dimension.

**3** The Australian Labour Account does not include analysis of persons, jobs, hours and payments by age or gender, as for most policy purposes these needs are adequately met from the existing Labour Force Survey, labour demand business surveys and Census publications produced by the ABS.

##### OUTPUT

**4** The Australian Labour Account, in essence, is a system for compiling a set of core labour market statistics from existing data. The output is a set of tables that provide a systematic and consistent view of the core variables over time.

**5** Labour Account statistics are arranged in four "quadrants": Jobs, Persons, Labour Volume and Labour Payments.

**6** In the compilation process, residual differences remain between the estimated number of filled jobs based on business sources and those derived from household sources. These differences remain after making adjustments for known conceptual and scope differences. They represent measurement error in the respective sources, and are reflected in the "statistical discrepancy" series highlighted in the "unbalanced" tables. In the balanced tables, separate business and household estimates have been replaced by a single "filled jobs" estimate. Consequent adjustments are also made to estimates of employed persons, hours worked and hours paid for. The harmonised, or "balanced", filled jobs series are based on a more detailed industry by industry investigation of the underlying sources of measurement error. This process is ongoing, and the balanced tables reflect the current state of this work. Affected series are likely to be subject to further revision.

**7** It is important to note that measurement error refers to the unavoidable sampling, non-sampling and modelling uncertainty, rather than a mistake or omission.

##### CONCEPTUAL SCOPE

**8** Accounting conventions are necessary to define the scope and treatment of activities that occur within the economy. The production and residency conventions adopted in the Australian System of National Accounts (ASNA) are used in the Australian Labour Account to determine the scope of activities covered, and the size of the economy measured.

**9** The scope of the Australian economy defined by these conventions embraces the activities of all enterprises resident within Australia's economic territory engaged in the production of goods and services, which fall within the scope of the National Accounts production boundary. The Labour Account relates to the employment of all persons in jobs created by those enterprises. In this

context:

- an enterprise is a productive undertaking maintained and controlled by one or more households, corporations or "quasi-corporations" that are resident in Australia's economic territory. Enterprises include (for example):
  - businesses operated by unincorporated self-employed trades persons,
  - family operated farms,
  - large corporations such as the major commercial banks and supermarket chains,
  - Government departments and agencies like Centrelink and the ATO, and
  - schools and hospitals operated by the state, or by religious organisations and charities.
- the National Accounts production boundary embraces the production of all goods and services, with the exception of services produced by household controlled enterprises solely for consumption by the household itself. This exclusion relates to (for example) the cooking of meals for household members, household washing and cleaning and care of dependents. However, the "shelter services" provided by owner occupied dwellings are included within the production boundary.
- Australian economic territory includes all geographies under the control of the Australian Government, i.e. the Australian mainland, off-shore islands, Antarctic territories, Australian embassies and military establishments in other countries, and Australia's exclusive maritime economic zone. It excludes foreign embassies and military establishments in Australia.
- an enterprise is considered "resident" if the "economic interest" of its controlling institutional unit (household, corporation or quasi-corporation) is centred in Australian economic territory.

## FRAMEWORK

**10** The main objective of the Australian Labour Account framework is to incorporate labour input aggregates (persons, jobs, hours) which describe supply and demand in the labour market, as well as labour related payments (as income and as costs). The framework covers all types of employment including employees, self-employment and contributing family workers.

**11** The Australian Labour Account provides a conceptual framework through which existing labour market data from different sources can be confronted and integrated, with the aim of producing a coherent and consistent set of aggregate labour market statistics.

**12** The Australian Labour Account framework has been designed to conceptually align with the ASNA framework. This enhances compatibility with national accounts and productivity estimates.

**13** Household side and business side data are confronted to help identify and address gaps and inconsistencies in the source data sets.

**14** Data confrontation is the process of comparing data that has generally been derived from different surveys or other sources, especially those of different frequencies, in order to assess their coherency, and the reasons for any differences identified.

**15** The Australian Labour Account framework has four distinct quadrants: Jobs, Persons, Labour Volume and Labour Payments. The four quadrants are linked by a set of identity relationships, which the aggregate statistics must satisfy.

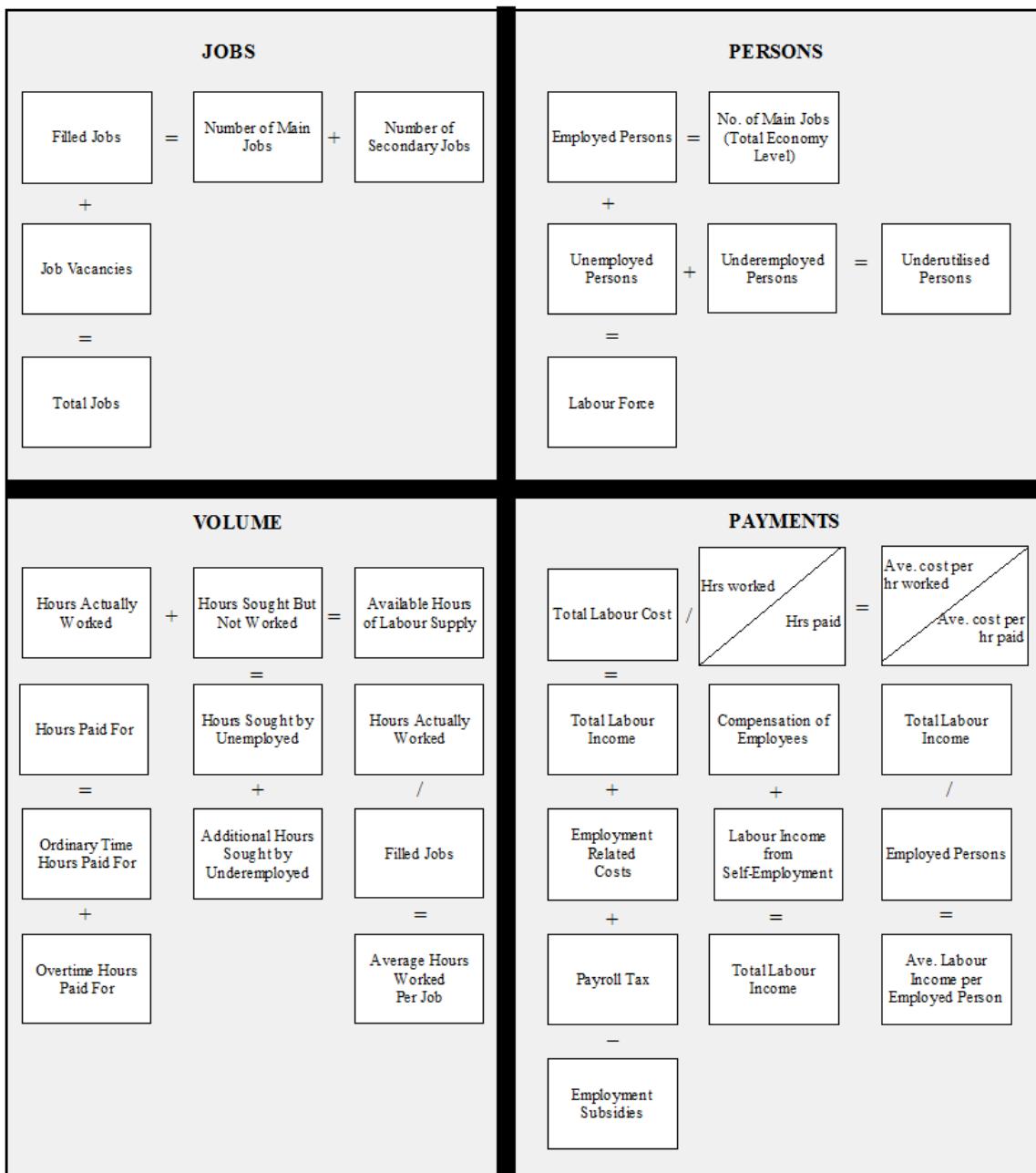
**16** Some relationships in the framework are direct:

- Employed Persons = Number of Main Jobs (at the total economy level)

**17** Other relationships are considered indirect, such that the relationship is based on an average or ratio measure:

- Average Hours Worked per Job = Hours Actually Worked/Filled Jobs

## Australian Labour Account: Identity Relationship Diagram



## SCOPE ADJUSTMENTS

**18** Adjustments for scope and conceptual differences between data sources are required in compiling the Australian Labour Account..

**19** Scope adjustments are made in each of the four quadrants in the Australian Labour Account to ensure coherence.

**20** Filled Jobs (business sources) is mainly based on summing estimates from two different business surveys. Data from a third source is added to account for employment in an industry division that was outside the scope of the primary sources. The following scope adjustments are made:

- add the number of persons from known industries excluded from primary business survey sources,
- add the number of persons employed in the permanent defence forces,
- add the number of unpaid contributing family workers,
- add the number of child workers who do not work for an employer as they are excluded from business surveys, and
- subtract the number of persons from specific industry subdivisions duplicated in primary sources to avoid double counting.

**21** Scope adjustments made in one quadrant may be applied to another quadrant, and flow through to a third quadrant, based on the identity relationships.

**22** Filled Jobs (household sources) is based on the number of jobs held by people employed in main jobs and secondary jobs sourced from the LFS, which is a household survey. Scope adjustments made to Filled Jobs (household sources) were similar to those made to Filled Jobs (business sources), to align the employed person estimates from the LFS with production boundary and residency concepts present in the business surveys. The following scope adjustments are made to Filled Jobs (household sources) to address LFS scope exclusions:

- add the number of persons employed in the permanent defence forces,
- add the number of child workers,

- add the number of main jobs held by non-resident visitors to Australia, and
- add the number of secondary jobs held by non-resident visitors.

## **JOBs**

**23** A job is a set of production related tasks that can be assigned to and undertaken by a person, and for which they are usually, but not necessarily, remunerated either in money or in kind. Jobs are created by enterprises. A "filled job" exists where an enterprise establishes explicit or implicit employment contracts with individual persons to undertake the job. Estimates of movements in the number of jobs in the economy provide a measure of labour market performance and capacity.

**24** Defining a job is difficult. In the language used in national accounts, a job is an economic activity through which people engage in production. However, a dictionary definition is perhaps easiest to comprehend: a task or piece of work, especially one that is paid.

**25** In the context of the Australian Labour Account, a job is a set of production related tasks that can be assigned to and undertaken by a person, and for which they are usually, but not necessarily, remunerated either in money or in kind.

**26** The Jobs quadrant in the identity relationship diagram provides data on the number of jobs, both filled and vacant, including the number of main jobs and the number of secondary jobs.

**27** In the "Balanced" Labour Account tables, employment estimates from business surveys are reconciled with employment estimates from household surveys to produce a single harmonised Filled Jobs time series. Detailed information on data sources and methods used to compile Jobs data is in the ABS Labour Account companion publication Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

## **PERSONS**

**28** The size of the labour force is a measure of the total number of people in Australia who are willing and able to work. It includes everyone who is working or actively looking for work - that is, the number of people employed and unemployed together as one group.

**29** The official measure of the population of Australia is based on the concept of usual residence. This concepts refers to all people, regardless of nationality, citizenship or legal status, with some exceptions. By convention, persons are considered to be "usually resident" if they have been or intend to remain in Australia for at least 12 out of 16 consecutive months.

**30** The scope of the population in the Australian Labour Account includes all persons who contribute to Australian economic activity (as defined by the production and territory conventions of the ASNA), irrespective of their residency status.

**31** There is not always a one-to-one relationship between jobs and people, insomuch as a job can be vacant, or one person can have more than one job. Therefore, the number of jobs in an economy will be greater than the number of persons employed.

**32** Industry estimates for the unemployed population are based on industry of last job worked (within the last two years) from the Labour Force Survey, and do not necessarily equate to the industries in which the unemployed are currently seeking work, nor do they include those who have never held a job previously. As such, care should be exercised when interpreting estimates of unemployed persons (and therefore the total labour force) on an industry basis.

**33** The Persons quadrant provides statistics on persons employed, persons looking for and available for employment, and persons with potential for further employment. Detailed information on data sources and methods used to compile Persons data is in the ABS companion publication Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

## **LABOUR VOLUME**

**34** The Labour Volume quadrant describes the relationship between the hours of labour that are supplied by individuals and the hours of labour that are used or demanded by enterprises. It quantifies the number of hours worked by persons in all jobs. These data have a direct link to National Accounts and productivity statistics, as they are measures of labour input used in the production of goods and services.

**35** Measuring changes in the level of hours worked for different groups of employed persons is important in order to monitor working and living conditions, as well as analysing economic cycles. Information on hours of work enables various analytical insights such as: classification of employed persons into full-time and part-time status; the identification of underemployed persons; and the creation of aggregate monthly hours worked estimates.

**36** The Labour Force Survey is the primary source for household side hours worked data. Statistics relating to hours paid are based on business survey data, namely the ABS Survey of Employee Earnings and Hours, Australia (cat. no. 6306.0). Detailed information on data sources and methods used to compile Labour Volume data is in the ABS companion publication Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

## **Derived items**

**37** The annual Average hours worked per job item is derived by using a flow measure (hours actually worked) divided by a stock measure (annual average level of filled jobs). Users are advised to take account of conceptual and scope differences when comparing these data with other estimates measured at the same point in time, such as average weekly hours.

## **LABOUR PAYMENTS**

**38** The Labour Payments quadrant accounts for the costs incurred by enterprises in employing labour and the incomes received by people from their labour provision. It can be described as the cost of labour, and reflects the interactions between jobs, persons and labour volume (hours worked).

**39** The measure of total labour costs is based on the concept of labour as a cost to employers and includes wages and salaries, employers' social contributions (typically superannuation and/or social insurance payments), and all other general employee costs borne by the employer such as training costs, use of recruitment services, payroll tax and so on. Any government subsidies, rebates or allowances for wage and salary payments paid to employees are deducted from employers' labour costs.

**40** Labour Payments data are primarily sourced from underlying data from two ABS National Accounts publications: Australian System of National Accounts (cat. no. 5204.0) and the Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0). Detailed information on data sources and methods used to compile Labour Cost data is in the ABS companion publication Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

#### Derived items

**41** The annual Average labour income per person item is derived by using a flow measure (total labour income) divided by a stock measure (annual average level of employed persons). As such, users are advised to take account of conceptual and scope differences when comparing these data with other annual estimates measured at the same point in time, such as average weekly earnings.

#### SOURCES OF ERROR

**42** After adjusting for conceptual and scope differences between data sources, a statistical discrepancy remains between the number of filled jobs as reported by businesses and the number of filled jobs as reported by households.

**43** These discrepancies represent the cumulative impact of data source error, including survey error and modelling error. Survey error includes both sampling error and non-sampling error.

**44** Sampling error is the predictable variability arising from the use of samples, rather than a complete enumeration of the populations of enterprises and households (i.e. a census). It refers to the difference between an estimate for a population based on data from a sample and the 'true' value for that population which would result if a census were taken.

**45** Non-sampling error is caused by factors other than those related to sample selection. Non-sampling error can happen at any stage of a survey and can occur in non-survey data sources. An example of non-sampling error could be missing data or misclassification in government administrative records used directly in the Australian Labour Account. Error could occur in the industry classification of sponsored visa holders, or in the reported number of persons in the permanent defence forces.

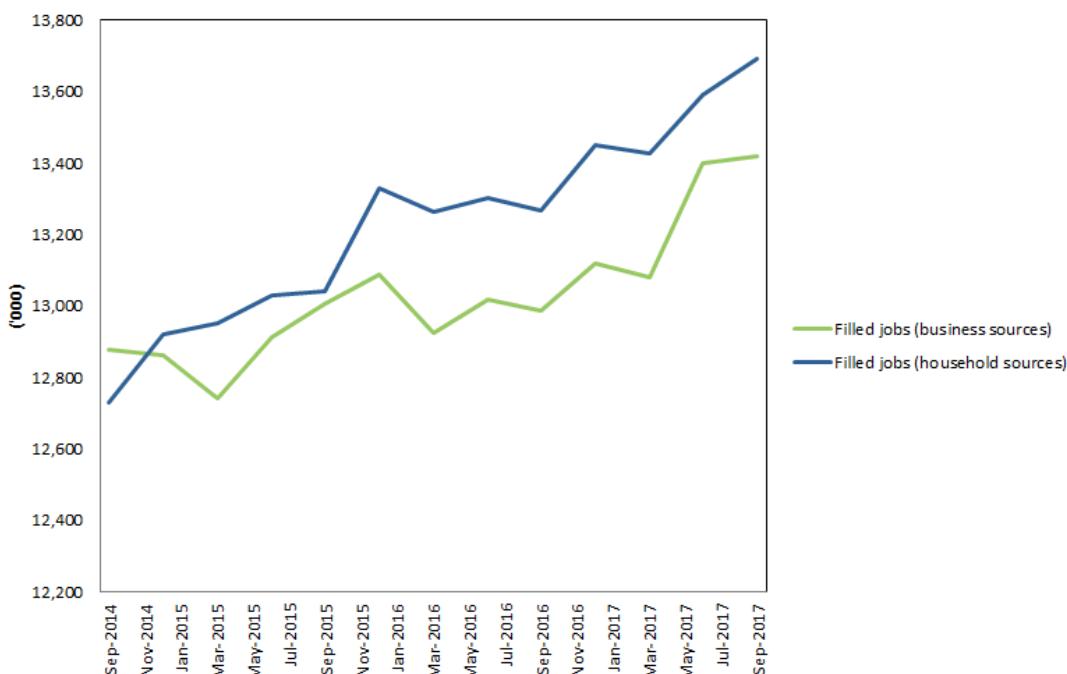
**46** Modelling error reflects errors embedded in the modelling assumptions used in the Australian Labour Account, for example in assuming that the proportion of children aged under 15 years who work has remained constant since 2006, or in assuming that quarterly Business Indicators, Australia (cat. no. 5676.0) employment movements accurately reflect quarterly change in the latest available annual data.

#### BALANCING THE AUSTRALIAN LABOUR ACCOUNT

**47** In compiling the Labour Account, residual differences remain between the estimated number of filled jobs based on business sources and those derived from household sources. These differences remain after making adjustments for known conceptual and scope differences. They represent measurement error in the respective sources, and are reflected in the "statistical discrepancy" series highlighted in the "unbalanced" tables. In the balanced tables, separate business and household estimates have been replaced by a single "filled jobs" estimate. Consequent adjustments are also made to estimates of employed persons, hours worked and hours paid for. The harmonised, or "balanced", filled jobs series are based on a more detailed industry by industry investigation of the underlying sources of measurement error. This process is ongoing, and the balanced tables reflect the current state of this work. Affected series are likely to be subject to further revision.

**48** In original terms the discrepancy between household sources and business sources was 274 thousand jobs, or 2%, in September 2017 quarter.

## NUMBER OF FILLED JOBS, TOTAL ALL INDUSTRIES, SEPT QTR 2014 TO SEPT QTR 2017



### Adjustments to other quadrants

**49** Adjustments made to filled jobs through this process have flowed through to two other quadrants in the Australian Labour Account: Persons and Labour Volume.

**50** The number of employed persons was adjusted proportionally with adjustments to filled jobs, after taking account of the level of multiple job holding in the particular industry.

**51** Any adjustments made to filled jobs on the household side had a corresponding adjustment to the number of hours worked. This adjustment was calculated by multiplying the adjustment to filled jobs, by the average hours worked in each industry.

**52** Any adjustments made to filled jobs on the business side had a corresponding adjustment to the number of hours paid for. This adjustment was calculated by multiplying the adjustment to filled jobs, by the average hours paid for in each industry.

### SEASONALLY ADJUSTED AND TREND ESTIMATES

**53** More detailed information on the methods for deriving seasonally adjusted and trend estimates are described in Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

**54** Seasonal adjustment is a statistical technique that attempts to measure and remove the effects of systematic calendar related patterns including seasonal variation to reveal how a series changes from period to period. Seasonal adjustment does not aim to remove the irregular or non-seasonal influences, which may be present in any particular data series. This means that movements of the seasonally adjusted estimates may not be reliable indicators of trend behaviour.

**55** It is important to note that the methods used in seasonal adjustment do not force the sum of the estimates for each quarter of a year to equal the original annual total.

**56** Seasonally adjusted estimates have seasonal effects removed, but they still contain the irregular elements, which may be of particular interest when analysing industry data. The Labour Accounts methodology and confrontation framework has addressed some of the quarterly sampling variability that may be seen in a single survey source. As a result, the industry analysis in this publication has a greater focus on seasonally adjusted data, with the remaining irregular movements being reasonably indicative of the actual state of the labour market, rather than measurement error.

**57** For analysis of the underlying behaviour of the labour market, the ABS recommends using trend estimates. These are produced using a statistical smoothing technique, in order to dampen the irregular element.

**58** For more information about ABS methods for deriving trend estimates and an analysis of the advantage of using them over alternative techniques for monitoring trends, see Information Paper: A Guide to Interpreting Time Series - Monitoring Trends (cat. no. 1349.0) or contact Time Series Analysis by email at <Time.Series.Analysis@abs.gov.au>.

### RELATED PRODUCTS AND PUBLICATIONS

**59** For those who are less familiar with national accounts, as well as other newcomers to the field of national accounting, the United Nations provides an introduction to some basic concepts and structures of the SNA National Accounts: A Practical Introduction. This information is freely available from the UN Statistics Division web site. [[https://unstats.un.org/unsd/publication/SeriesF/seriesF\\_85.pdf](https://unstats.un.org/unsd/publication/SeriesF/seriesF_85.pdf)].

**60** Eurostat, the statistical office of the European Union, provides similar introductory information on national accounts with its Building the System of National Accounts website [<http://ec.europa.eu/eurostat/statistics-explained/index.php>]

/Building\_the\_System\_of\_National\_Accounts] as does the OECD's Understanding National Accounts([http://www.oecd-ilibrary.org/economics/understanding-national-accounts\\_9789264027657-en](http://www.oecd-ilibrary.org/economics/understanding-national-accounts_9789264027657-en)).

**61** Detailed information on the Australian System of National Accounts is available in the ABS publication Australian System of National Accounts: Concepts, Sources and Methods (cat. no. 5216.0).

**62** Detailed information on the Australian Labour Account is available in the ABS publication Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

**63** Detailed information on the labour force and labour force statistics is available in the ABS publication Labour Statistics: Concepts, Sources and Methods (cat. no. 6102.0.55.001).

## Glossary

### GLOSSARY

#### **Additional hours sought by underemployed**

Additional hours sought by underemployed refers to the number of additional hours part-time employed persons would prefer to work and are available for, and the number of hours not worked by full-time employed persons for economic reasons.

#### **Adjustments to employed persons**

Adjustments to employed persons are the additions and deductions made to align the scope of the Labour Force Survey with Australian System of National Accounts residency.

Additions are made for:

- persons working in the permanent defence forces;
- non-residents (short term visitors) living in Australia and employed by Australian resident enterprises; and
- child workers.

Deductions are made for:

- Australian residents living in Australia employed by non-resident enterprises.

#### **Adjustments to hours actually worked in all jobs**

Adjustments to hours actually worked in all jobs are the additions and deductions made to hours worked to align the scope of the Labour Force Survey with Australian System of National Accounts residency.

Additions are made for hours worked by:

- non-residents (short term visitors) living in Australia and employed by Australian resident enterprises;
- child workers; and
- persons working in the permanent defence forces.

Deductions are made for hours worked by:

- Australian residents living in Australia employed by non-resident enterprises.

#### **Available hours of labour supply**

Available hours of labour supply refers to the total number of hours spent directly on and available to be spent on, and in relation to, productive activities. It is the aggregate of hours actually worked and hours preferred but not worked.

#### **Average hours actually worked per job**

Average hours actually worked per job is the hours actually worked divided by the number of filled jobs.

#### **Average labour cost per hour paid**

Average labour cost per hour paid is the total labour cost divided by hours paid for.

#### **Average labour cost per hour worked**

Average labour cost per hour worked is the total labour cost divided by hours actually worked in all jobs.

#### **Average labour income per employed person**

Average labour income per employed person is the total labour income divided by the number of employed persons.

#### **Compensation of Employees**

Compensation of Employees is defined as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the employee (SNA 2008, para 7.5, ASNA 11.6). It is the value of entitlements received by employees from employers for services rendered. It is further classified into two sub components: Wages and salaries and Employers' social contributions.

### **Contributing family workers**

Contributing family workers are persons who work without pay in an enterprise operated by a relative.

### **Employees**

Employees are persons who work for a public or private employer and receive remuneration in wages, salary, a retainer fee from their employer while working on a commission basis, tips, piece-rates, or payment in kind. Employees are engaged under a contract of service (an employment contract) and take directions from their employer/supervisor/manager/foreman on how work is performed.

### **Employers' social contributions**

Employers' social contributions are payments by employers which are intended to secure for their employees the entitlement to social benefits should certain events occur, or certain circumstances exist, that may adversely affect their employees' income or welfare - namely work related accidents and retirement.

### **Employment related costs to employers**

Employment related costs to employers relates to other costs attributed to employees, such as training costs and recruitment costs.

### **Employment subsidies**

Employment subsidies are any government wage subsidies an employer may receive.

### **Filled jobs**

Filled jobs refer to all positions of employment that are currently filled (including self-employment). Filled jobs can be measured from either household sources (such as the Labour Force Survey), or business sources (such as the Economic Activity Survey).

### **Hours actually worked in all jobs**

Hours actually worked in all jobs includes:

- all time spent directly on, and in relation to, productive activities;
- down time;
- time spent in addition to hours worked during normal periods of work (including overtime);
- time spent at the place of work on activities such as the preparation of the workplace, repairs and maintenance, preparation and cleaning of tools, and the preparation of receipts, time sheets and reports;
- time spent at the place of work waiting or standing by due to machinery or process breakdown, accident, lack of supplies or power or internet access, etc.; and
- time corresponding to short rest periods (resting time) including tea and coffee breaks or prayer breaks.

Hours actually worked in all jobs excludes:

- hours paid for but not worked such as paid annual leave, public holidays or paid sick leave;
- meal breaks; and
- time spent on travel to and from work when no productive activity for the job is performed (even when paid by the employer).

For multiple job holders, actual hours worked includes the hours worked in all jobs.

### **Hours paid but not worked**

Hours paid but not worked refers to hours associated with paid leave, such as annual leave, paid public holidays, paid sick leave and other paid leave.

### **Hours paid for**

Hours paid for is the time for which payment has been received for award, standard or agreed hours of work (paid at normal or premium rates, in cash or in kind), regardless of whether the hours were actually worked or not.

Hours paid for:

- includes time paid but not worked such as paid annual leave, paid public holidays and certain absences such as paid sick leave; and
- excludes time worked but not paid by the employer, such as unpaid overtime, and absences that are not paid by the employer, such as unpaid educational leave or maternity leave that is paid through transfers by government from social security systems.

As such, hours paid for will differ from the number of hours actually worked if an employee works more or less hours than their paid hours. Hours paid for will also differ from usual hours in some cases, for example if an employee performs long hours in some weeks to have rostered days or weeks off. Hours paid for is the aggregate of ordinary time hours paid for and overtime hours paid for.

### **Hours sought but not worked**

Hours sought but not worked refers to the number of hours a person would prefer to work and is available to work beyond the usual hours they do work. It is the sum of hours sought by unemployed, and additional hours sought by underemployed.

### **Hours sought by unemployed**

Hours sought by unemployed refers to the number of hours an unemployed person would prefer to work and is available for.

### **Hours worked but not paid**

Hours worked but not paid refers to unpaid hours worked. It is the time (hours) worked but not paid for by the employer, such as unpaid overtime, and absences that are not paid by the employer, such as unpaid educational leave or maternity leave that may be paid through transfers by government from social security systems.

### **Industry of last job held**

This is the industry of the last job held for unemployed persons aged 15 years and over who worked more than two years ago.

### **Job sharing**

A job with job sharing arrangements is a full-time job that is filled by employing two or more people working part-time to share the responsibility and duties of the one position.

### **Job vacancy**

A job vacancy is an unfilled job that an employer intends to fill either immediately or in the near future. A job vacancy is considered to exist if an employer has taken concrete steps to find a suitable person to carry out a specific set of tasks and would have recruited (entered into a job contract with) such a person if she/he had been available.

Measures of job vacancies exclude:

- jobs not available for immediate filling;
- jobs for which no recruitment action has been taken;
- jobs of less than one day's duration;
- jobs only available to be filled by internal applicants within an organisation;
- jobs to be filled by employees returning from paid or unpaid leave, or after industrial disputes;
- vacancies for work to be carried out by contractors; and
- jobs for which a person has been appointed but has not yet commenced duty.

### **Labour Account**

Labour Account added as a prefix to a data item (e.g. Labour Account main job and Labour Account secondary job) are indicative of statistical estimates made to address scope discrepancies between the principal data sources (such as the household Labour Force Survey) and the conceptual scope of the Australian Labour Account (the SNA 2008 production and residence boundaries). For example, the number of filled jobs reported in the Labour Force Survey is adjusted by adding estimates of jobs held by members of the permanent defence forces, child workers and short-term visa holders, and deducting an estimate of Australian residents employed by non-resident enterprises.

### **Labour Account employed persons**

Labour Account employed persons is the sum of all persons engaged by Australian resident enterprises in economic activity within the System of National Accounts (SNA) production boundary.

### **Labour Account labour force**

The Labour Force, also referred to as the currently economically active population, is the aggregate of employed and unemployed persons which gives a measure of the number of people contributing to, or actively looking and immediately available for, the supply of labour at a point in time. Labour Account labour force is the sum of Labour Account employed persons and Labour Force Survey unemployed persons.

### **Labour Account main job**

Labour Account main job is the main activity carried out by an employed person. In the Australian context, this is the job in which most hours are usually worked. An employed person can only have one main job.

### **Labour Account secondary job**

Labour Account secondary job is any job held by an employed person, other than main job. A person can have multiple secondary jobs.

### **Labour Force Survey employed persons**

Labour Force Survey employed persons is the sum of all persons, defined as employed in line with ILO guidelines and in ABS official employment statistics (Labour Statistics: Concepts, Sources and Methods, cat. no. 6102.0.55.001).

An employed person must meet the following criteria:

- be aged 15 years and over; and
- be usually resident in Australia (i.e. not a short term visitor intending to stay in Australia for less than 12 months in a 16 month period); and
- not be a member of the permanent defence forces of Australia, a foreign diplomat (or a dependant of a foreign diplomat) or a member of a foreign military force stationed in Australia (or their dependant); and
- meet at least one of the following criteria during the Labour Force Survey reference week:
  - worked for one hour or more without pay in a family business or on a farm (contributing family workers); or
  - worked for one hour or more for pay, profit, commission or payment in kind, in a job or business or on a farm (Employees, Owner-Managers of Incorporated Enterprises (OMIEs), Self-employed persons (Owner-Managers of Unincorporated Enterprises (OMUEs)) and contributing family workers); or
  - were owner managers who had a job, business or farm, but were not at work; or
  - had a job but were not at work and were:
    - away from work for less than four weeks up to the end of the reference week; or
    - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four week period to the end of the reference week; or
    - away from work as a standard work or shift arrangement; or
    - on strike or locked out; or
    - on workers' compensation and expected to return to their job.

Members of the permanent defence forces, certain diplomatic personnel of overseas governments customarily excluded from census and estimated population counts, overseas residents in Australia, and members of non-Australian defence forces (and their dependents) stationed in Australia are excluded from the Labour Force Survey.

#### **Labour Force Survey main job**

Labour Force Survey main job is the number of main jobs held by members of the usually resident civilian population aged 15 years and over. This is the official estimate of the number of main jobs derived from data collected in the household Labour Force Survey and published in Labour Force, Australia (cat. no. 6202.0).

#### **Labour Force Survey not in the labour force**

Labour Force Survey not in the labour force comprises all persons aged 15 years and over who are neither employed nor unemployed. They include people who perform home duties or care for children, were retired, voluntarily inactive and those permanently unable to work. Not all people who are classified as not in the labour force are voluntarily economically inactive; some want to work but are classified as not in the labour force because they do not satisfy the criteria for unemployment (active job search and availability to start work).

#### **Labour Force Survey secondary job**

Labour Force Survey secondary job is the number of secondary jobs held by members of the usually resident civilian population aged 15 years and over. This is the official estimate of the number of secondary jobs derived from data collected in the household Labour Force Survey.

#### **Labour Force Survey underemployed persons**

Labour Force Survey underemployed persons reflects insufficient hours of work and where a person is willing and available to engage in additional hours of employment. International guidelines recognise underemployment in two forms: time related underemployment (persons who would prefer more hours) and inadequate employment situations, which represents insufficient use of skills and experience; inadequate income; and excessive hours.

Time related underemployed persons refer to part-time employed persons who wanted to work more hours and were available to start work with more hours, either in the reference week or in the four weeks subsequent to the survey; or persons employed full-time who worked part-time hours in the reference week for economic reasons. It is assumed that these people wanted to work full-time in the reference week and would have been available to do so.

For now, the Australian Labour Account will only include measures of time related underemployment.

#### **Labour Force Survey underutilised persons**

Labour Force Survey underutilised persons encapsulates both unemployment and underemployment, and provides more comprehensive information on the state of labour market and measures the extent to which all available labour force resources are not being fully used in the economy.

#### **Labour Force Survey unemployed persons**

Labour Force unemployed persons refers to people in the civilian usually resident population aged 15 years and over who are without work, actively seeking work and currently available for work. All three conditions must be satisfied for a person to be considered unemployed. For people waiting to start a new job they have already obtained, the active job search criterion is waived.

#### **Labour income from self-employment**

Labour income from self-employment refers to the employment related income received by household members from self-employment. It consists of all payments and benefits in cash, kind or services, which are received, over a given reference period, by individuals for themselves or in respect of their family members, by virtue of their involvement in current or former self-employment jobs.

## **Ordinary time hours paid for**

Ordinary time hours paid for includes stand-by or reporting time hours which are part of standard hours of work, and hours of paid annual leave, paid sick leave and long service leave taken during the reference period. Ordinary time hours paid for at penalty rates (e.g. for shift work) are not converted to their ordinary time equivalent. This definition excludes any hours unpaid and overtime hours.

## **Owner-Managers of Incorporated Enterprises (OMIEs)**

Owner-Managers of Incorporated Enterprises (OMIEs) are persons who operate their own incorporated enterprise with or without hiring employees.

## **Owner-Managers of Unincorporated Enterprises (OMUEs)**

Self-employed (Owner-Managers of Unincorporated Enterprises (OMUEs)) are persons who operate their own unincorporated enterprise with or without hiring employees.

## **Paid overtime**

Paid overtime, otherwise known as overtime hours paid for, represents hours paid for in excess of award, standard or agreed hours of work, at both standard and penalty rates.

## **Payroll Tax**

Payroll tax includes taxes payable by the employer on the wage and salary bill.

## **Residual (Labour Payments quadrant)**

Residual in the Labour Payments quadrant refers to the difference between 'total labour income' and 'total labour costs'. This is not a statistical discrepancy, and the two measures are similar but not conceptually identical.

## **Residual (Labour Volume quadrant)**

Residual in the Labour Volume quadrant refers to the difference between 'hours paid for' and 'hours worked'. This is not defined as a statistical discrepancy as there remains a data gap in terms of unpaid hours worked.

This residual can provide an insight into labour market conditions. An industry in which the gap between hours paid for and hours worked is below the average for the economy as a whole is likely to be indicative of more casual employment arrangements, in which employees have less access to benefits such as paid recreation and sick leave. A reduction over time in the gap between hours paid for and hours worked could signal a tightening of labour market conditions or an increase in casualisation.

## **Secondary employment adjustment**

The secondary employment adjustment calculates the number of employed people who hold secondary jobs in each industry. It is calculated by excluding multiple job holding within the same industry, from the total number of filled jobs.

## **Statistical discrepancy**

The statistical discrepancy is equal to filled jobs from the demand side less filled jobs from the supply side, after addressing scope discrepancies. These two measures are, in principle, the same. The statistical discrepancy reflects measurement error associated with the source data.

## **Total jobs**

Total jobs refers to all positions of employment that are currently filled, or are vacant and could be filled. It is the aggregate of the number of filled jobs and the number of job vacancies.

## **Total labour costs**

Total labour costs refers to all costs incurred by the employer in the employment of labour. It is further classified into two sub components: Compensation of employees and other labour related costs to employers.

## **Total labour income**

Total labour income refers to the employment related income received by households from all paid employment. It consists of all payments and benefits in cash, kind or services, which are received, over a given reference period, by individuals for themselves or in respect of their family members, by virtue of their involvement in current or former paid employment jobs.

## **Wages and salaries**

Wages and salaries (internationally referred to as earnings) relates to regular and irregular remuneration in cash and in kind paid to employees for time worked or work done together with remuneration for time not worked, such as annual vacation and other paid leave or holidays (ASNA 11.8).

Wages and salaries is further classified into two categories: wages and salaries paid in cash, and wages and salaries paid in kind. Conceptually wages and salaries excludes severance and termination pay, which, along with, sick leave payments; and payments for other forms of leave other than annual leave and long service leave should be classified as employers' social contributions as recommended by the SNA 2008. However, as data providers in Australia are unable to consistently differentiate between these various types of severance and leave payments, and other wage and salary payments, these payments are included in the Australian

System of National Account estimates of wages and salaries. Fringe benefits taxes which are payable on income in kind provided to employees are included as part of wages and salaries and also included in income taxes payable by households.

Payments to members of the defence forces consist of salaries and allowances, attendance pay and the value of food, clothing, and travel supplied to permanent members, reserves and cadets. Deferred pay is included but war gratuities, which are regarded as social assistance benefits, are not.

Wages and salaries also include changes in provisions for future employee entitlements, such as provisions for long service leave.

Wages and salaries paid include the values of any social contributions (e.g. to superannuation funds), income taxes, etc., payable by the employee even if withheld by the employer for administrative convenience, such as direct payment to a superannuation fund or the Australian Taxation Office (ATO). Also included are penalty payments (e.g. overtime, hazardous work allowances), supplementary allowances such as housing and meal allowances (unless paid as social benefits), holiday pay, payment while on sick leave, bonuses, and commissions, tips and gratuities paid directly to the employee by a third party.

### **Wages and salaries paid in kind**

Wages and Salaries paid in kind covers the cost to an employer of goods and services which are provided to the employee, or to another member of the employee's household, free of charge or at a substantial discount, and which are clearly of benefit to the employee as a consumer. Examples include meals, housing, uniforms that can be worn away from work, vehicles available for personal use, goods and services produced by the employer enterprise, recreational facilities, transportation, car parking, child care, low interest loans and stock options. Some of these benefits may appear more like intermediate consumption, but are included in compensation of employees because, even though they are paid to attract employees, they are benefits that employees would often have to provide themselves.

## **Quality Declaration - Summary**

### **QUALITY DECLARATION - SUMMARY**

#### **INSTITUTIONAL ENVIRONMENT**

For information on the institutional environment of the Australian Bureau of Statistics (ABS), including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

#### **RELEVANCE**

This publication contains experimental estimates of the Australian Labour Account. The Australian Labour Account provides a conceptual framework through which existing labour market data from different sources can be confronted and integrated, with the aim of producing a coherent and consistent set of aggregate labour market statistics.

The Australian Labour Account is macroeconomic in scope, building on the International Labour Organisation (ILO) fundamentals and expanding them to ensure consistency with the Australian System of National Accounts (ASNA). It aims to extend the analytical capacity of national accounts data by providing a labour-specific lens.

The Australian Labour Account produces a set of statistical tables of employment related data that are consistent with the ASNA.

#### **TIMELINESS**

The Australian Labour Account tables are designed for use in macro-economic analysis. It is intended they will provide annual and quarterly data on a similar timetable and at a similar level of industry detail as the national accounts.

#### **ACCURACY**

Different data sources have been used in compiling the four quadrants of the Australian Labour Account. In general, the same data sources have been used to compile both quarterly and annual labour account estimates. Quarterly survey estimates have also been benchmarked to annual survey estimates where possible.

Australian Labour Account data at an industry level are derived where possible from data classified by industry reported in both business and household surveys. Where Australian Labour Account data at an industry level are not reported in surveys, the industry detail has been modelled using alternative sources.

The Australian Labour Account uses both published and unpublished data from various sources. These are detailed in Appendix 2 of the Concepts, Sources and Methods 2018 manual. Where unpublished data sources are referenced, for example using an ABS catalogue number, this is intended to provide background information relating to the underlying survey data only. It is not intended that users be able to fully replicate published Australian Labour Account data.

After adjusting for conceptual and coverage differences between data sources, a statistical discrepancy remains between the number of filled jobs as reported by businesses and the number of filled jobs as reported by households.

These discrepancies represent the cumulative impact of data source error, including survey error, and modelling error. Survey error includes both sampling error and non-sampling error. Sampling error is the predictable variability arising from the use of samples, rather than a complete enumeration of the populations of enterprises and households. Non sampling error is all other error in the estimate, and includes error arising from the reliability of the survey population and related benchmark data and error made by respondents in reporting data. Further information on these issues can be found under Chapter 13 of the Concepts, Sources and

## COHERENCE

There are currently no international standards regarding the production of a labour account, however a four-step process has been documented by the ILO and was followed (to varying degrees) by the National Statistical Organisations in Denmark, the Netherlands and Switzerland in compiling their own labour accounts. The ILO process has been used as a guide in compiling the Australian Labour Account.

The ILO describes two approaches to compiling a labour account: a cross-sectional approach involving confrontation and reconciliation of key labour market measures, and a longitudinal approach which incorporates changes to population and labour force via births, deaths, and net migration, and includes measures such as duration of employment. The Australian Labour Account focuses on the cross-sectional approach (since this is the approach that supports data confrontation and reconciliation), and also provides a time-series dimension.

The development of the annual Australian Labour Account disaggregated by industry subdivision and division, and the quarterly Australian Labour Account disaggregated by industry division, provide an opportunity to significantly improve the quality of aggregates such as the number of jobs occupied within each industry, measures of hours worked, and labour productivity growth.

## INTERPRETABILITY

Contained within this release are Data Cubes, Main Features, Explanatory Notes, Technical Notes and a Glossary. For further reference we have also compiled the Australian Labour Account Concepts, Sources and Methods manual. These all provide information on the terminology, classifications and other technical aspects associated with these statistics.

- Australian Labour Account Concepts, Sources and Methods (cat. no. 6150.0)

## ACCESSIBILITY

Quarterly experimental estimates for the Australian Labour Account, September quarter 2010 to September quarter 2017 at the Division industry level is released electronically via the ABS website as Data Cubes in spreadsheet format. Thereafter annual experimental estimates for the Australian Labour Account, 2010–2011 to 2016–2017 at the Subdivision and Division industry level is released electronically via the ABS website as Data Cubes in spreadsheet format.

The ABS welcomes comments from users on the new methodologies and the usefulness of the resulting estimates for their analytical purposes. If you are interested in contributing to the ABS review, please contact Labour Market Section director on 02 6252 7988 or <labourmarket@abs.gov.au>.

# Uses of a Labour Account (Technical Note)

## TECHNICAL NOTE: USES OF THE AUSTRALIAN LABOUR ACCOUNT

### INTRODUCTION

The Australian Labour Account provides a set of core macro-economic labour market variables derived through data integration, with both an industry focus and time series dimension.

It builds on the International Labour Organisation (ILO) fundamentals and expands them to ensure consistency with the System of National Accounts (2008 SNA). The Labour Account also extends the analytical utility of National Accounts data, through providing a labour market-specific perspective.

### DEVELOPMENT

The experimental Australian Labour Account has been developed to provide a framework for integrating data from a number of sources (including household survey, business survey, and administrative data). The result is internally consistent estimates of key labour market variables, which more effectively enable the description and analysis of the state and dynamics of the Australian labour market. These core variables can help users make sense of seemingly inconsistent labour related data, which are often based on different reference periods, populations, concepts, definitions and methodologies.

These inconsistencies are magnified when data are dis-aggregated by industry or sector, or in analysis requiring the combination of data from both business and household sources, for example combining output and hours worked by industry to derive industry productivity growth rates. There is a risk that users may draw inappropriate conclusions from the use of different labour statistics without an informed understanding of which data to use in which circumstances.

For example, consider the following questions:

### How many people are employed in Australia?

It depends on when you ask this, who you ask, and how you ask the question.

Based on the answers provided by "responsible adults" from the households where workers live, the basic approach used in the Labour Force Survey, there were 12.1 million people employed in Australia in 2016-2017.

Based on the answers provided by "responsible representatives" of businesses and other enterprises where they work, the approach adopted in business surveys, there were 13.0 million filled jobs in Australia in 2016-2017.

## **Why are the two figures different?**

First, they are counting different things - for example, the Labour Force Survey asks about a person's main job to identify employed and unemployed people, and people not in the labour force. However, the Business surveys measure the number of "filled jobs", not the number of employed people. A person holding two jobs will be counted twice in a business survey, once by each employer.

When people in households were asked how many jobs they have, they told the ABS in 2016-2017 they had 12.9 million. Businesses reported they had 13.0 million filled jobs, which was 103,000 (or 0.8%) more than reported by households in the Labour Force Survey.

The second reason for the difference is that, in line with international standards, not everyone who has a job is in the scope of the Labour Force Survey. Similarly, some forms of work are not captured by reporting businesses.

People whose main job is in the permanent military forces are not reported by either businesses or households, and household representatives are not asked to report on jobs held by people intending to stay in Australia for less than 12 months. No employment by children under 15 years, either paid or unpaid, is reported by households. In addition, unpaid contributions of work to a family business or farm by family members of any age are not reported by businesses. If the ABS adjusts for these known differences, then the number of filled jobs reported by businesses would be raised to 13.1 million, and the number of filled jobs reported by households would increase to 13.4 million.

The remaining difference of 286,405 jobs, or 2.1% of the household based estimate, reflects the unavoidable measurement limitations related to measuring filled jobs and employment.

- Likely sources of measurement error in household based data include lack of knowledge about the jobs held by household members on the part of the person responding to the Labour Force Survey.
- On the business survey side, there is no single ABS business survey that collects employment data from businesses across the whole economy, and business based estimates of filled jobs are compiled from multiple sources, potentially resulting in a larger overall total measurement error than in any of the individual sources.
- Both business and household surveys are also subject to sampling variability. Divergences can further arise when estimating missing data, or modelling is required to offset data gaps and lags in the supply of information.

## **How many hours were worked in Australia during 2016-2017?**

Based on hours worked reported by households, and after adjusting for defence force personnel, short-term visitors and children: 20,536 million hours were worked in 2016-2017. Businesses reported the number of "hours paid for" at 21,530 million hours. These numbers imply that hours paid for but not worked, mainly various forms of paid leave, exceeded hours of unpaid overtime (hours worked but not paid for). This pattern was consistent over time at a whole of economy scale.

## **LABOUR ACCOUNT FRAMEWORK**

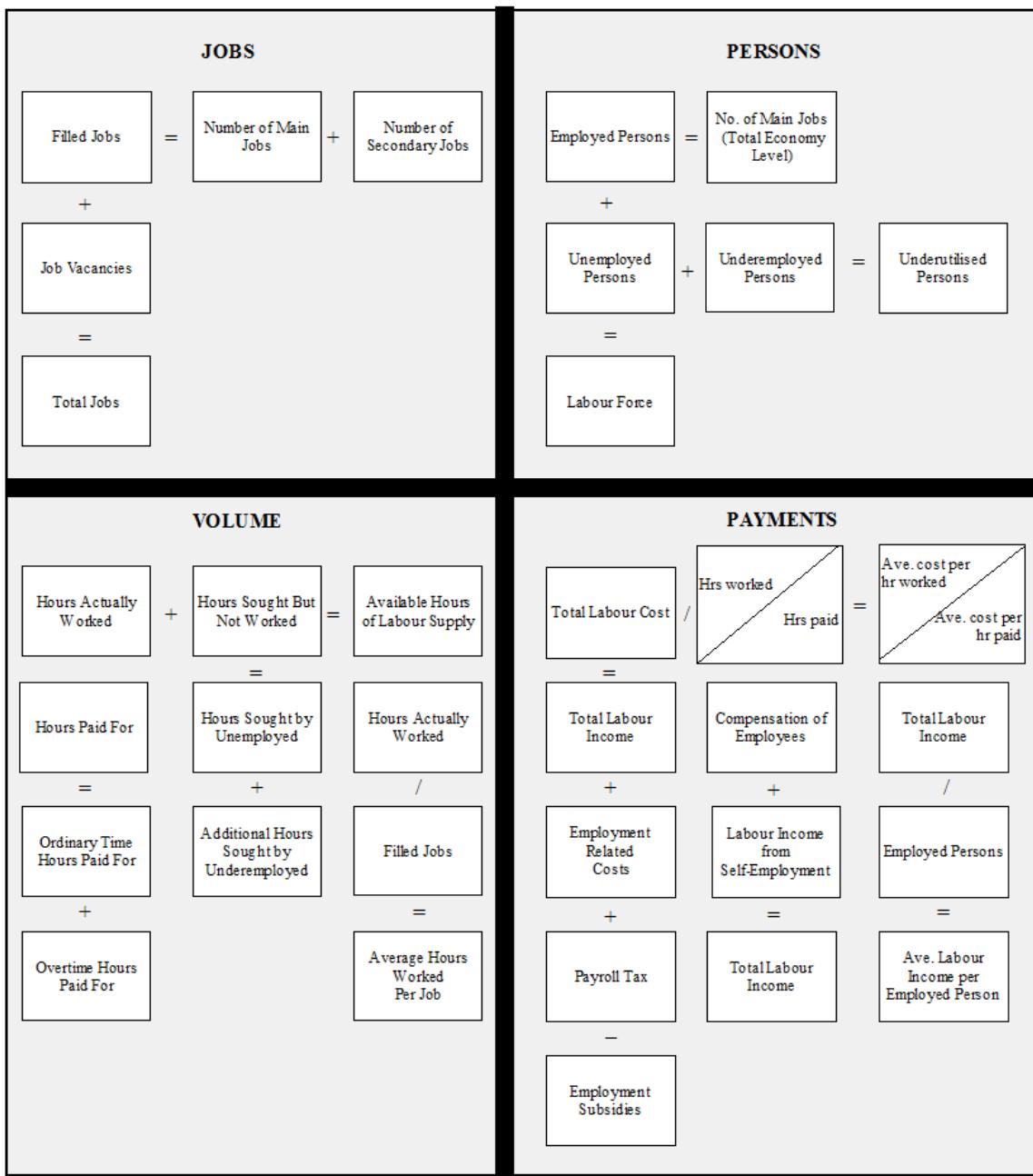
The Labour Account provides a conceptual framework through which existing labour market data from diverse sources can be confronted and integrated, with the aim of producing a coherent and consistent set of aggregate labour market statistics.

The Labour Account helps address data coherence by:

- bringing together related labour statistics from multiple sources in a single set of tables;
- applying a consistent set of concepts across the data to explore statistical anomalies;
- making transparent adjustments to data to offset conceptual and scope differences; and
- making further informed and documented data adjustments to provide a balanced set of labour statistics.

The Labour Account consists of four quadrant tables: jobs, persons, volume and payments (see figure 1). Data in each table are available annually for 86 industry subdivisions, and quarterly for 19 high level industry divisions.

**Figure 1: Australian Labour Account Identity Relationships – Jobs, Persons, Volume and Payments**



The Jobs quadrant provides statistics on numbers of filled jobs derived separately from business and household sources, plus data on vacant jobs to provide a total number of jobs in the economy.

The Persons quadrant includes statistics on numbers of employed persons, together with data on numbers of unemployed and underemployed persons.

The Labour Volume quadrant provides statistics on hours paid for (derived from business data) and hours worked (from household sources), plus data on additional hours of work sought by unemployed and underemployed persons.

The Labour Payments quadrant provides statistics on labour income and employment costs.

The Labour Account is able to combine data from the jobs, persons, volume and payments tables to calculate average hours worked, average remuneration (per person and per job), and average labour costs per job.

The scope of the Australian Labour Account is consistent with that of the national economy, as defined in the Australian System of National Accounts (ASNA), which follows the international standard set out in the United Nations System of National Accounts. The Labour Account includes all jobs created by enterprises engaged in the production of goods and services that fall within the scope of the National Accounts "production" boundary, operating within Australia's economic territory.

Labour Account employed persons are defined as all people who hold one or more of those jobs. Hours worked and paid for relate to productive activity in those jobs. Labour income relates to earnings derived from employment in those jobs and includes both Compensation of Employees, as defined in the ASNA, and an estimate of the labour related component of Gross Mixed Income. Labour costs relate to net employment related expenditure by businesses incorporating both labour remuneration, employment related intermediate consumption, and employment related net taxes.

The data sources used to compile Labour Account statistics do not always align completely with the ASNA. The household Labour Force Survey, for example, excludes permanent defence force personnel, short-term working visa holders and children under 15 from

its count of employed persons, all of whom fall within the scope of the Labour Account and ASNA concept of employed persons. The Labour Account tables include "adjustments" to bridge the conceptual and scope gaps between the ASNA standard and the principal data sources. For example data obtained from the Commonwealth Government are used to "add in" defence force personnel. Commonwealth data on short term visa arrivals and departures are used to estimate the stock of potential employed persons in this category. Labour force participation and employment rates for resident cohorts with similar characteristics are used to estimate numbers of working short-term visitors. These adjustment methodologies are fully documented in the Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0).

Finally, the Labour Account includes balanced estimates of filled jobs, employed persons, hours worked and hours paid for that adjust for the remaining sampling and non-sampling error. These adjustments are based on analysis of data for each industry, making use of employment related statistics on production, taxes, wages and salaries to assess the relative plausibility of competing estimates.

## USES

The Labour Account provides a time series of estimates of the number of employed persons, the number of jobs, hours worked and the income earned for each industry in one coherent framework. Historically, published statistics on employed persons in each industry have only been available for industry of main job. The expanded scope and additional data sources used in the Labour Account includes data for multiple job holders by industry of second, third and fourth job. For the first time, this enables an industry perspective of the total number of people employed in each industry in a time series. This could be used to better assess policy changes targeting a particular industry, providing a more realistic picture of the number of people impacted by the change.

The provision of time-series data on employment, hours and earnings, that are conceptually aligned with the Australian System of National Accounts data, will help improve macro-economic analysis and forecasting.

Consistent data on employment, hours and incomes will assist in assuring the quality of national accounts production and income data. A better alignment of hours worked with production (gross output and gross value added) at an industry level will improve the reliability of both labour and multi-factor productivity statistics.

The Labour Account is a complement to the existing suite of labour statistics. Users should continue to use the Labour Force Australia (cat. no. 6202.0) for headline employment, unemployment and persons not in the labour force as this is the data suite that is internationally comparable and aligned with International Labour Organisation conventions. If users require detailed dynamics essential for analysis of individual or household characteristics, such as household type, age, sex, income, occupation and educational qualifications, they should use the source data.

The Labour Account should be used for industry analysis of labour growth and performance in terms of people, jobs, hours and income.

Labour Account tables are likely to be of most value to people engaged in the use of labour statistics in macro-economic analysis, forecasting and in policy related research.

## The Australian Labour Account (Technical Note)

### TECHNICAL NOTE: THE AUSTRALIAN LABOUR ACCOUNT

#### WHY DEVELOP A LABOUR ACCOUNT?

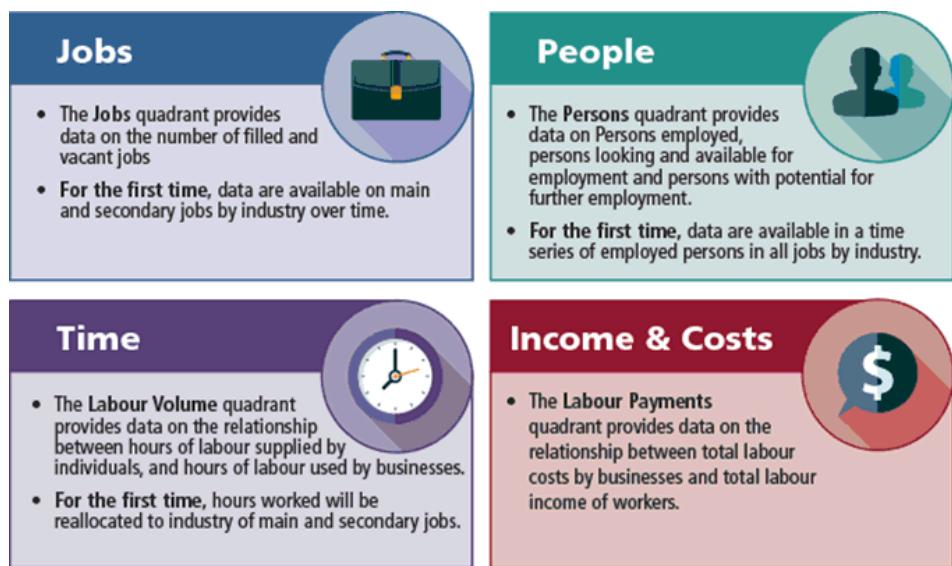
The experimental Australian Labour Account has been developed to provide a framework for integrating data from a number of sources (including household survey, business survey, and administrative data). The result is internally consistent estimates of key labour market variables, which more effectively enable the description and analysis of the state and dynamics of the Australian labour market. These core variables can help users make sense of seemingly inconsistent labour related data, which are often based on different reference periods, populations, concepts, definitions and methodologies.

The Labour Account provides a time series of estimates of the number of employed persons, the number of jobs, hours worked and the income earned for each industry in one coherent framework.

Historically, published estimates of employed persons in each industry have only been available for industry of main job. The expanded scope and additional data sources used in the Labour Account include data for multiple job holders by their industry of second, third and fourth job.

For the first time, this enables an industry perspective of the total number of people employed in each industry in a time series. This could be used to better assess policy changes targeting a particular industry, providing a more complete picture of the number of people impacted by the change (see Figure 1).

Figure 1: Australian Labour Account Quadrants



## LABOUR ACCOUNT FRAMEWORK

The Labour Account consists of four quadrants: Jobs; Persons; Labour Volume and Labour Payments (see Figure 2 and 3).

The Jobs Quadrant provides data on numbers of filled jobs derived separately from business and household sources, plus data on vacant jobs to provide a total number of jobs in the economy.

The Persons Quadrant includes data on numbers of employed persons, together with data on numbers of unemployed and underemployed persons (derived from household sources).

The Labour Volume Quadrant provides data on hours paid for (derived from business sources) and hours worked (from household sources), plus data on additional hours of work sought by unemployed and underemployed persons (from household sources).

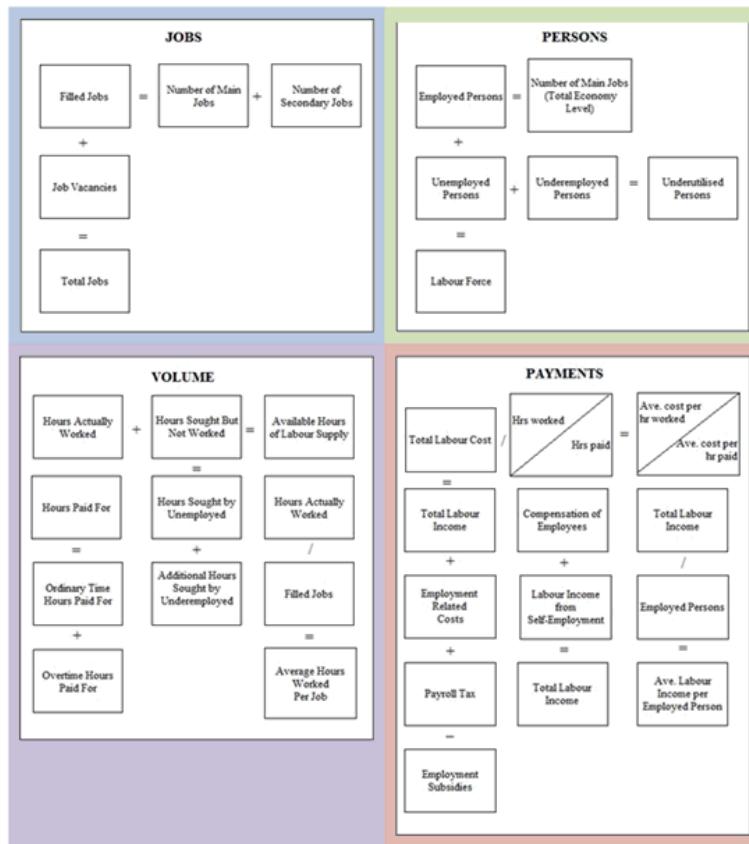
The Labour Payments Quadrant provides data on labour income and employment costs (from business sources).

The Labour Account combines data from the persons, jobs, labour volume and labour payments tables to calculate average hours worked, average remuneration (per person and per job), and average labour cost per hour worked.

The scope of the Australian Labour Account is consistent with that of the national economy, as defined in the Australian System of National Accounts (ASNA), which follows the international standard set out in the United Nations System of National Accounts.

Labour Account tables are likely to be of most value to people engaged in the use of labour statistics in macro-economic analysis, forecasting and in policy related research.

**Figure 2: Identify Relationship Diagram**



## CONSIDER THE FOLLOWING QUESTIONS...

### How many people are employed in Australia?

It depends on when you ask this, who you ask, and how you ask the question.

Based on the answers provided by "responsible adults" from the households where workers live, the basic approach used in the Labour Force Survey, there were 12.1 million people employed in Australia in June 2017.

Based on the answers provided by "responsible representatives" of businesses and other enterprises where they work, the approach adopted in business surveys, there were 13.0 million filled jobs in Australia in June 2017.

### Why are the two figures different?

First, they are counting different things - for example, the Labour Force Survey asks about a person's main job to identify employed and unemployed people, and people not in the labour force. However, a person holding two jobs will be counted twice in a business survey, once by each employer. Business surveys measure the number of "filled jobs", not the number of employed people.

When people in households were asked how many jobs they have, they told the ABS in June 2017 they had 12.9 million. Businesses reported they had 13.0 million filled jobs, which was 103,000 (or 0.8%) more than reported by households in the monthly Labour Force Survey.

The second reason for the difference is that, in line with international standards, not everyone who has a job is in the scope of the Labour Force Survey. Similarly, some forms of work are not captured by reporting businesses.

People whose main job is in the permanent military forces are not reported by either businesses or households, and household representatives are not asked to report on jobs held by people intending to stay in Australia for less than 12 months. No employment by children under 15 years, either paid or unpaid, is reported by households. In addition, unpaid contributions of work to a family business or farm by family members of any age are not reported by businesses. If the ABS adjusts for these known differences, then the number of filled jobs reported by businesses would be raised to 13.1 million, and the number of filled jobs reported by households would increase to 13.4 million.

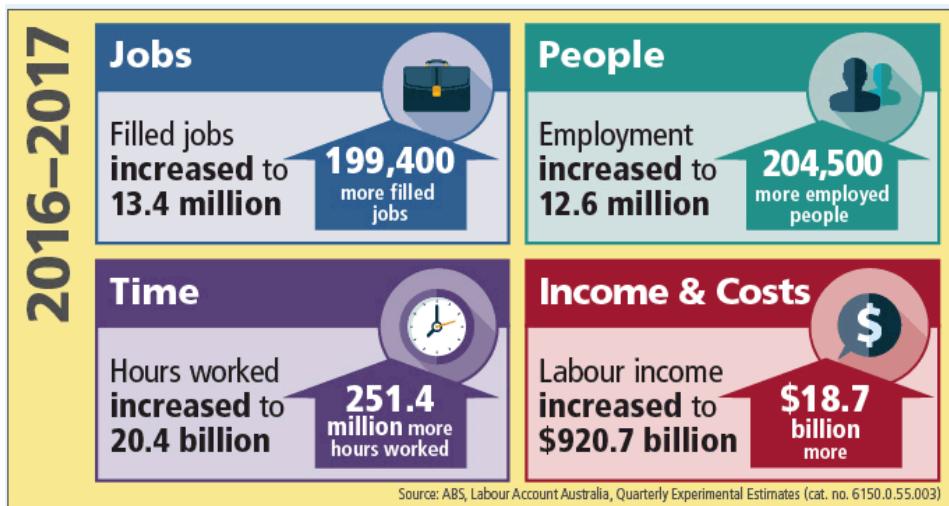
The remaining difference of 286,000 jobs, or 2.1% of the household based estimate, reflects the unavoidable measurement limitations related to measuring filled jobs and employment.

- Likely sources of measurement error in household based data include lack of knowledge about the jobs held by household members on the part of the person responding to the Labour Force Survey.
- On the business survey side, there is no single ABS business survey that collects employment data from businesses across the whole economy, and business based estimates of filled jobs are compiled from multiple sources, potentially resulting in a larger overall total measurement error than in any of the individual sources.
- Both business and household surveys are also subject to sampling variability. Divergences can further arise when estimating missing data, or modelling is required to offset data gaps and lags in the supply of information.

## How many hours were worked in Australia during 2016-2017?

Based on hours worked reported by households, and after adjusting for defence force personnel, short-term visitors and children: 20,536 million hours were worked in 2016-2017. Businesses reported the number of "hours paid for" at 21,530 million hours. These numbers imply that hours paid for but not worked, mainly various forms of paid leave, exceeded hours of unpaid overtime (hours worked but not paid for). This pattern was consistent over time at a whole of economy scale.

Figure 3: Results of the experimental Australian Labour Account for 2016–2017



## FOR MORE INFORMATION

The Labour Account is designed to complement the existing suite of labour statistics. Australia's official labour force data are derived from the household Labour Force Survey and published in Labour Force, Australia (ABS cat. no. 6202.0), which remains the source of internationally comparable statistics on the labour force, employment and unemployment.

If you require detailed information essential for analysis of individual or household characteristics, such as household type, age, sex, income, occupation and educational qualifications, they should also use Labour Force Survey data.

The ABS has released four publications regarding the Labour Accounts:

- Australian Labour Account: Concepts, Sources and Methods (cat. no. 6150.0)
- Labour Account Australia, Experimental Estimates (cat. no. 6150.0.55.001)
- Information Paper: Australian Labour Account (cat. no. 6150.0.55.002)
- Labour Account Australia, Quarterly Experimental Estimates (cat. no. 6150.0.55.003)

---

© Commonwealth of Australia

All data and other material produced by the Australian Bureau of Statistics (ABS) constitutes Commonwealth copyright administered by the ABS. The ABS reserves the right to set out the terms and conditions for the use of such material. Unless otherwise noted, all material on this website – except the ABS logo, the Commonwealth Coat of Arms, and any material protected by a trade mark – is licensed under a Creative Commons Attribution 2.5 Australia licence